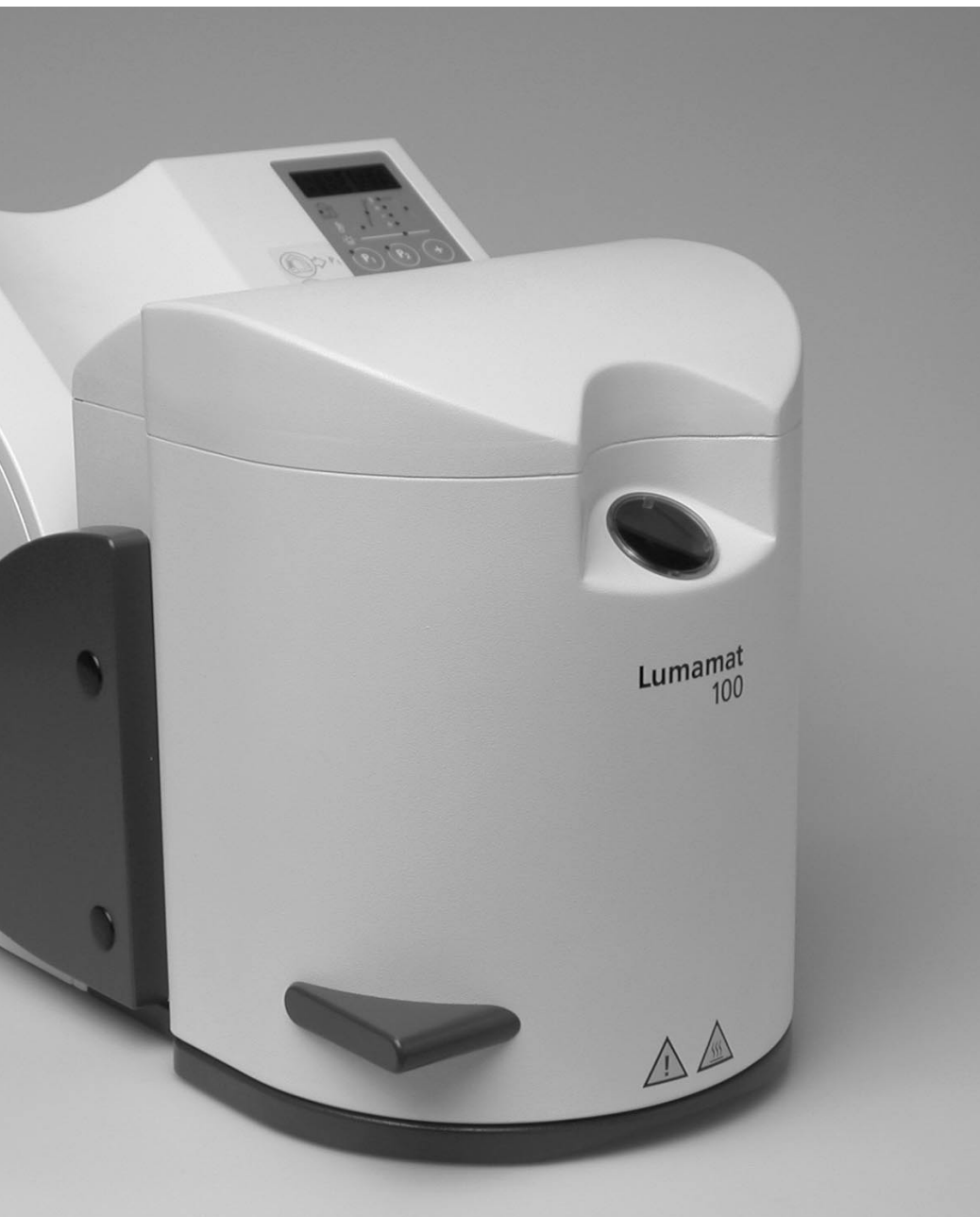


# Lumamat® 100



## Operating Instructions

CE

**KONFORMITÄTSERKLÄRUNG  
DECLARATION OF CONFORMITY  
CERTIFICAT DE CONFORMITÉ  
DICHIARAZIONE DI CONFORMITÀ  
DECLARACIÓN DE CONFORMIDAD  
DECLARAÇÃO DE CONFORMIDADE**

**ivoclar  
vivadent**  
BENDERERSTR. 2  
FL-9494 LIECHTENSTEIN  
TEL ++423 / 235 35 35  
FAX ++423 / 235 33 60



*Produkt / Product / Produit / Prodotto / Producto / Produto*

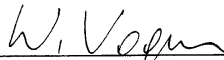
**Lumamat 100**

- DE** Hiermit erklären wir in alleiniger Verantwortung, dass das oben aufgeführte Produkt den erwähnten Normen entspricht.  
Gemäss den Bestimmungen der EU-Richtlinie(n):
- GB** We herewith declare that the product listed above complies with the mentioned standards.  
Following the provisions of Directive(s):
- FR** Par la présente, nous déclarons que le produit ci-dessus indiqué est conforme aux normes énoncées.  
Conformément aux dispositions de la (des) Directive(s) CE:
- IT** Con la presente dichiariamo sotto la nostra responsabilità, che il prodotto sopra menzionato corrisponde alle norme citate.  
Secondo le disposizioni della/e Direttiva/e CEE:
- ES** Por la presente declaramos que el producto arriba indicado cumple con las normas citadas.  
Siguiendo las indicaciones de la Directiva:
- PT** Declaramos que o produto citado cumpre as normas mencionadas.  
De acordo com as especificações da(s) Diretriz(es):

73/23/EWG 89/336/EWG	EN 55011	1999 B+
	EN 61000-3-2	2000
	EN 61000-3-3	2001
	EN 61010-1/A2	1995
	EN 61010-2-010/A1	1996
	EN 61326	2001

Schaan, 12.02.2003

Bürs, 12.02.2003

  
Dipl. Ing. Wolfgang Vogrin

Geschäftsleitung Produktion und Technik <sup>(1)</sup>  
Ivoclar Vivadent AG, FL-9494 Schaan

  
Markus Stadlmayr

Produktionsmanager <sup>(2)</sup>  
Ivoclar Vivadent GmbH, A-6706 Bürs  
(Hersteller) <sup>(3)</sup>

<sup>(1)</sup> Board of directors Production and Engineering / Membres du Directoire Production et Technique / Direzione Produzione e Tecnica / Miembro consejo administración, Director de Producción y D. Técnico / Diretoria de Produção e Tecnologia

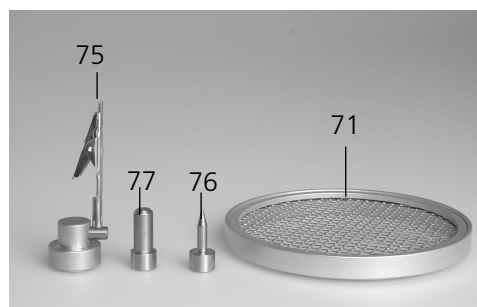
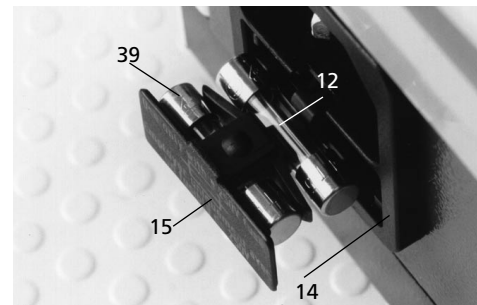
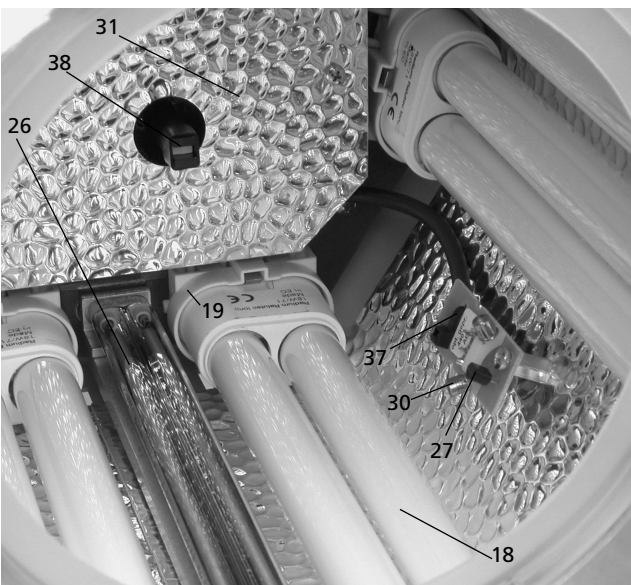
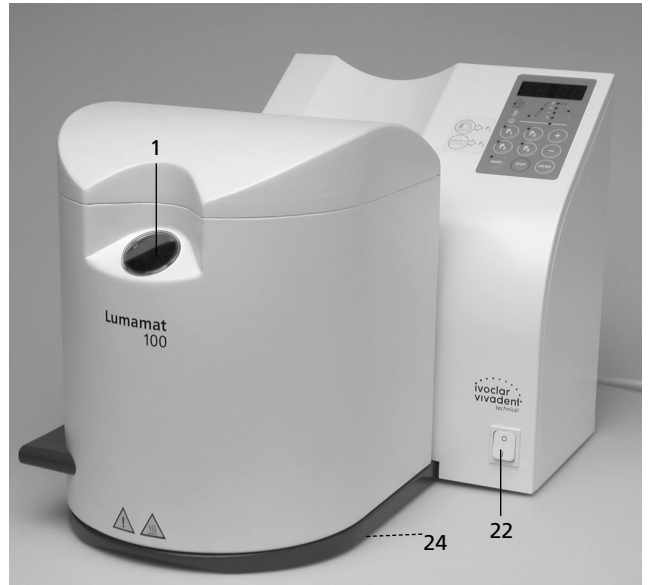
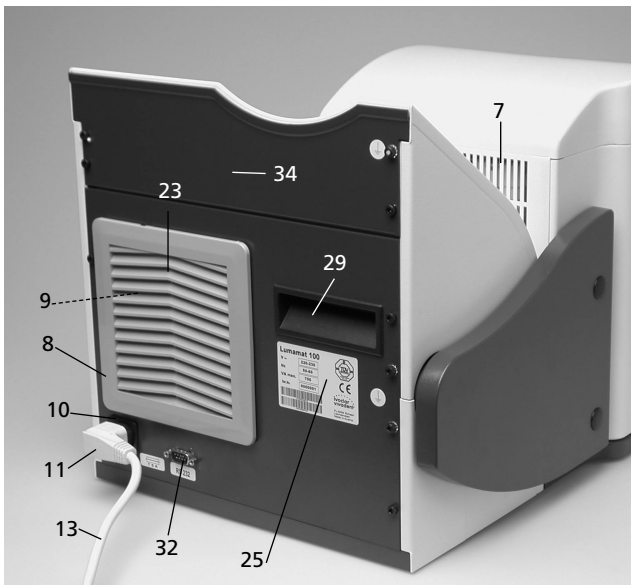
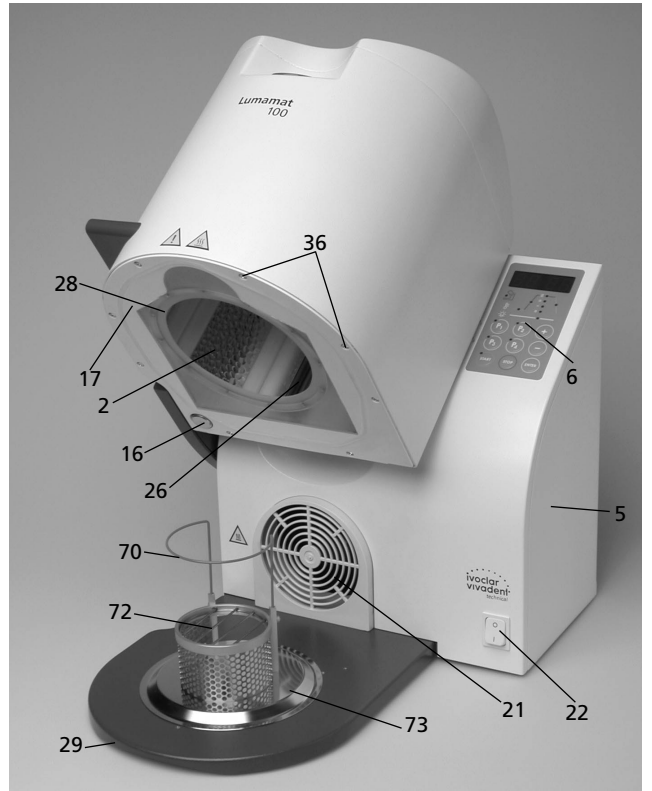
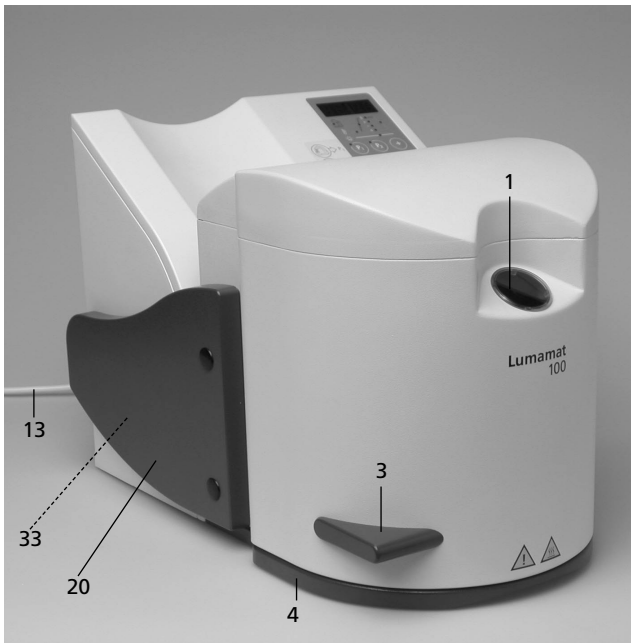
<sup>(2)</sup> Manager / Directeur / Amministratore / Director / Gerente

<sup>(3)</sup> Manufacturer / Fabricant / Produttore / Fabricante / Fabricante

Rev. 1.0

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# List of Parts

## Front view

- 1 Viewing window
- 2 Curing chamber
- 3 Grip
- 4 Bottom of unit
- 5 Housing
- 6 Keypad
- 7 Air vents
- 8 Filter holder
- 9 Filter pad
- 10 Power socket
- 11 Power plug
- 12 Fuse
- 13 Power cord
- 14 Lateral fuse stop
- 15 Fuse holder
- 16 Magnetic catch
- 17 Lamp protection
- 18 Lamp
- 19 Lamp socket
- 20 Swivel arm
- 21 Air vent with fan
- 22 On/Off switch
- 23 Ventilation grating
- 24 Rubber feet
- 25 Rating plate
- 26 Infrared heater
- 27 Temperature sensor
- 28 Sealing
- 29 Recessed grip
- 30 Light sensor
- 31 Upper reflector
- 32 RS-232 interface
- 33 Spring for gas pressure
- 34 Rear panel
- 36 Screws for lamp protection
- 37 Sensorprint
- 38 Temperature protector
- 39 Extra fuse

## Electronic controls

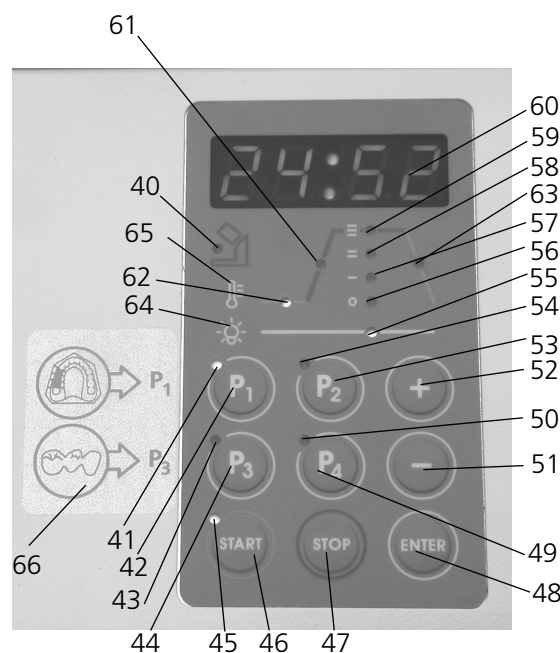
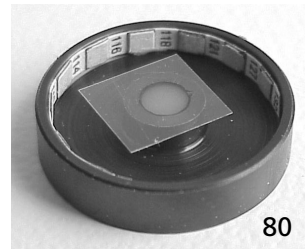
- 40 Indicator for opened unit
- 41 LED P1
- 42 P1 key
- 43 LED P3
- 44 P3 key
- 45 LED of Start key
- 46 Start key
- 47 Stop key
- 48 Enter key
- 49 P4 key
- 50 LED P4
- 51 - key
- 52 + key
- 53 P2 key
- 54 LED P2
- 55 Light indicator
- 56 Heating indicator (off)
- 57 Heating indicator Stage 1
- 58 Heating indicator Stage 2
- 59 Heating indicator Stage 3
- 60 Display
- 61 Indicator for heating procedure
- 62 Indicator for procuring
- 63 Indicator for cooling procedure
- 64 Symbol for light
- 65 Symbol for temperature
- 66 Information plate

## Object holder

- 70 Tempering space limiter
- 71 Object holder
- 72 Object holder support
- 73 Bottom reflector
- 74 Space limiter grid
- 75 Alligator clip
- 76 Object holder small
- 77 Object holder large

## Test set

- 80 Sample holder
- 81 Temperature stripe
- 82 Test material
- 83 Protection foil



# 1. Introduction / Signs and Symbols

## 1.1 Preface

### *Dear Customer,*

Thank you for having purchased the Lumamat 100. It is a high quality technical product. The Lumamat 100 has been especially developed for the SR Adoro material from Ivoclar Vivadent. The integrated infrared heater permits tempering of the SR Adoro material.

The Lumamat 100 has been designed according to the latest industry standards. Inappropriate use may damage equipment and be harmful to personnel. Please observe the relevant safety instructions in Chapter 2.



**You must read these Operating Instructions!**

## 1.2 Introduction

The Lumamat 100 has been developed for use in dental lab technology and is equipped with state-of-the-art electronic components.

The Operating Instructions are divided into several chapters to help you find specific topics quickly and easily.

## 1.3 Signs and symbols

The signs and symbols in these Operating Instructions and on the Lumamat 100 facilitate the finding of important points and have the following meanings:

### **Operating Instructions:**



#### *Risks and dangers*

This symbol marks safety instructions that must be followed to prevent injury or death. Furthermore, damage to the unit and/or laboratory may thus be avoided.



#### *Important information*

This symbol marks additional information for correct and economic use of the Lumamat 100.



#### *Contraindication*



#### *Burn hazard*

### **Unit:**



Alternating current



On



Off



Burn hazard



Risk of crushing



# 2. Safety First

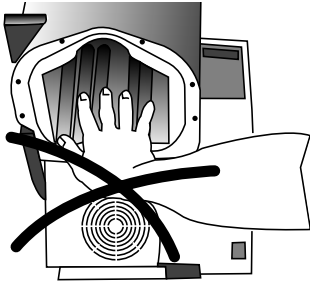
This chapter is especially important for personnel who work with the Lumamat 100 or who have to carry out maintenance or repair work. This chapter must be read and the corresponding instructions followed.

## 2.1 Indications

The Lumamat 100 must only be used to cure and temper SR Adoro materials and should be used for this purpose only. Other uses than the one stipulated are contraindicated. The manufacturer does not assume any liability for damage resulting from misuse. The user is solely responsible for any risk resulting from failure to observe these Instructions.

Further instructions to assure proper use of the Lumamat 100:

- The instructions, regulations, and notes in these Operating Instructions must be observed.
- The Lumamat 100 must be used under the stipulated environmental and operating conditions (see Chapter 9).
- The unit must be properly maintained.



### 2.1.1

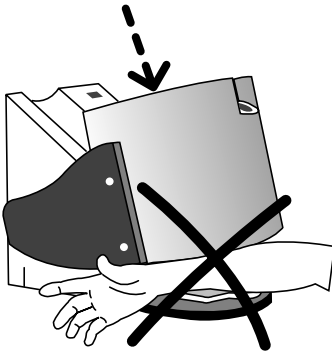


**Contraindication**



**Burn hazard**

The heater must not be touched, as there is a burn hazard. Furthermore, the life cycle of the heater is considerably shortened by hand sweat. The sensorprint must not be touched for the same reasons.



### 2.1.2

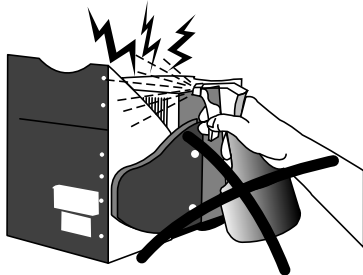


**Contraindication**



**Risk of crushing**

There is a risk of crushing when the curing chamber is being closed. Make sure that the necessary space is available.



### 2.1.3



**Risks and dangers**

Foreign objects must not be placed on the air vents. Make sure that no liquids or other foreign objects enter the air vents, since this may result in an electrical shock.

**Please also refer to section 3.2 in Chapter 3.**



### 2.1.4



**Contraindication**

The unit must not be carried by holding the swivel arm. Carry the unit only when it is closed. The recessed grips (29) are located at the rear panel (34) and in the front area of the bottom plate.

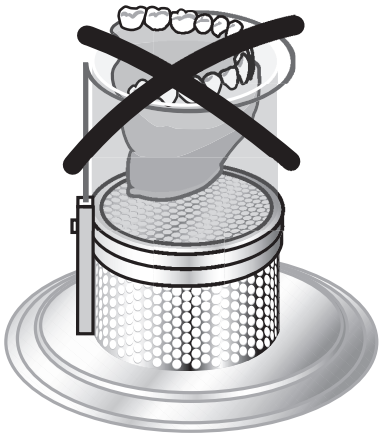


2.1.5



**Contraindication**

Objects must not be placed outside the acceptable tempering space.



2.1.6



**Contraindication**

Models that are too high and thus extend beyond the tempering space limiter (70) must not be placed on the object holder. Furthermore, thermoplastic model materials must not be used.



## 2.2 Health and safety instructions

This unit has been designed according to EN 61010-1 and has been shipped from the manufacturer in excellent condition as far as safety regulations are concerned. To maintain this condition and to assure risk-free operation, the user must observe the notes and warnings contained in the Operating Instructions.

- Do not place the unit in the immediate vicinity of heaters or other sources of heat.
- Place the apparatus on a fire-proof table (observe local regulations, e.g. distance to combustible objects, etc.).
- Always keep the air vents at the rear of the apparatus free from obstruction.
- Make sure that no foreign objects may enter the air vents.
- Do not touch any parts that become hot (lamp, heater) during the operation of the unit. There is a burn hazard.
- Clean unit only with a dry or slightly moist cloth. Do not use any solvents! Disconnect power before cleaning.
- Use original packaging for transportation purposes.
- The user must especially become familiar with the warnings and the operating conditions to prevent injury to personnel or damage to materials. The manufacturer is not responsible for damage resulting from misuse or failure to observe the Operating Instructions. Warranty claims cannot be accepted in such cases.
- Before switching on, make sure that the voltage indicated on the rating plate complies with your local power supply.
- The power plug may only be inserted into sockets with protected contacts.
- Before calibration, maintenance, repair, or exchange of parts, the power must be disconnected if the unit is to be opened.
- If calibration, maintenance, or repair has to be carried out with the power connected and the unit open, only qualified personnel, who are familiar with the risks and dangers, may perform these procedures.
- After maintenance, the required safety tests (high voltage resistance, protective conductor test, etc.) have to be carried out.
- It must be ensured that only fuses of the indicated type and rated current are used.
- If it is assumed that safe operation is no longer possible, the power must be disconnected to avoid accidental operation. Safe operation is no longer possible if
  - the unit is visibly damaged
  - the unit does not work
  - the unit has been stored under unfavourable conditions over an extended period of time.
- Use only original spare parts.
- The temperature range for faultless operation is +5 °C to +40 °C (41–104 °F).
- If the unit has been stored at very low temperatures or high atmospheric humidity it has to be dried or left to adjust to the room temperature for approx. 1 hour (do not connect to power yet).
- Note: Do not work with liquids near the unit. Should a liquid accidentally enter the unit, disconnect power and consult Customer Service. Do not operate the unit.
- The unit has been tested for use at altitudes of up to 2000 m above sea level.
- The unit must be used indoors.
- Operating the unit without a dust filter or with a dirty one influences temperature regulation. Adequate tempering according to Ivoclar Vivadent standards is not assured without a dust filter.

## Warnings

- Any disruption of the protective conductor either inside or outside the unit or any loosening of the protective conductor connection may lead to danger for the user in case of malfunction. Deliberate interruptions are not tolerated.
- Direct view into the light or reflecting surfaces without a filter is uncomfortable for the eyes. Prolonged exposure may lead to eye damage. Therefore, we recommend looking at the object only through the tinted viewing window of the unit. Protective goggles absorbing light or wavelengths below 500 nm can also be used.
- This is especially applicable for persons who work with the unit or in its vicinity for extended periods of time, or for people who have undergone eye surgery.
- Persons who are generally light-sensitive, or who take medication against light-sensitivity or photo-sensitivity should not be exposed to the light of the unit.
- Hot surface. There is a burn hazard. Do not touch the heater or the lamps when they are hot.
- Do not use this unit to cook food.
- The user is responsible for cleaning and decontamination measures, if hazardous materials spill in the unit or hazardous gases develop during operation of the unit (e.g. incorrect material). In this case, the user must contact the local Ivoclar Vivadent Service Center. Furthermore, the unit must no longer be used.

# 3. Product Description

## 3.1 Components

The Lumamat 100 consists of the following components:

- Base housing with electronic controls
- Swivel arm with curing chamber (lamps and heater)

## 3.2 Hazardous areas and safety equipment

Description of the hazardous areas:

Hazardous area	Type of risk
Heater	Risk of burning
Opening / closing mechanism	Risk of crushing
Electrical components	Risk of electrical shock
Lamp	Risk of eye damage
Outer surfaces of the curing chamber	Risk of burning

Description of the safety equipment:

Safety equipment	Protective effect
Protective conductor	Protection from electrical shock
Tinted viewing window	Prevents eye damage
Safety switch	The program is stopped when the apparatus is opened

Also refer to Chapter 2.

## 3.3 Functional description

The lamp radiates light at 400-580 nm, which initiates curing of the material. The integrated heater may be set on three different stages and is used for tempering the material. Please observe the recommended values in the Instructions for Use of the material. The apparatus is thus especially suitable for tempering the SR Adoro material.

## 3.4 Contraindication



- Curing of restorations mounted in an articulator.
- Curing of restorations on plaster models heavier than 400 g
- Curing of restorations on plaster model exceeding a height of 70 mm
- Curing of restorations on plaster models with a diameter of more than 80 mm
- Curing of restorations on resin models and thermoplastic materials
- Curing of temperature sensitive materials

# 4. Installation and Initial Start-Up

## 4.1 Unpacking and checking the contents

Remove components from their packaging and place the unit on a suitable table. There are special transportation grips. The unit is carried with one hand holding the grip at the rear of the apparatus and the other hand supporting the unit at the bottom, where there is a recessed grip.



**Never carry the unit by holding the swivel arm.**

Check the delivery for completeness (see 'Delivery Form' in Chapter 9) and transportation damage. If certain parts are missing or damaged, contact Ivoclar Vivadent Customer Service. We recommend keeping the original packaging for future transportation purposes. Make sure to place the corresponding transportation safety devices before transporting the unit.

## 4.2 Selecting the location

Place the unit on a flat surface using the rubber feet (24). Make sure it is not placed in the immediate vicinity of heaters or other sources of heat. Furthermore, protect the unit from direct sunlight. Make sure the air may properly circulate between the wall and the unit.



Remove the transportation safety devices from the unit:  
1. Safety tape

Check if all lamps are tightly fixed in their sockets. Push the lamps upwards for that purpose.

Position the unit in such a way that glare-free working is ensured and no direct view into the lamps is possible.

Make sure that there is enough space for the swivel arm to prevent obstruction of the swivel mechanism. The unit should neither be placed nor operated in areas where there is an explosion hazard.

## 4.3 Assembly and initial start-up

- Power connection:  
Make sure that the voltage indicated on the rating plate (25) complies with the local power supply.  
Should this not be the case, you must not connect the unit.  
Connect the power cord (13) with the power socket (10) of the unit and with the power supply.
- Tempering space limiter (70)  
The tempering space limiter is an optical auxiliary device, defining the acceptable tempering space for objects, together with the mounted object holder. These dimensions must be observed when placing objects in the curing chamber, since otherwise parts of the unit will be damaged.



### Initial start-up

The unit may only be switched on or off with the On/Off switch:



Switched on



Switched off

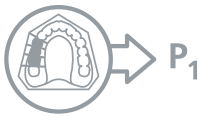
# 5. Operating Instructions

## 5.1 Introduction to the operation

Programs can be selected with P1, P2, P3, and P4 keys. The respective LED will then be illuminated.

The parameters are shown in the display. The program is started by pressing Start. The display then indicates the remaining time of the program. The program can be interrupted by pressing Stop.

## 5.2 Working with Program P1 (set program with plaster model)



Tempering program for SR Adoro materials (light/heat), which are polymerized/tempered on a plaster model (the parameters are set by the manufacturer and cannot be altered).

If the restorations are placed in the curing chamber together with a plaster model, Program P1 must be used (see also sticker on the apparatus).



When tempering partial models (e.g. 1/4 models, single or multiple cores), please refer to the additional instructions in the SR Adoro Instructions for Use.

## 5.3 Working with Program P2 (set program)

Light polymerization program for light-curing resins (light). (The parameters are set by the manufacturer and cannot be altered).

## 5.4 Working with Program P3 (set program without plaster model)



Tempering program for SR Adoro materials (light/heat), which are polymerized/tempered without a plaster model (the parameters are set by the manufacturer and cannot be altered).

If the restorations are placed in the curing chamber without the plaster model, Program P3 must be used (see also sticker on the apparatus).

## 5.5 Working with Program P4 (individual program)

The parameters for Program P4 can be set as desired (see also 6.2.2).

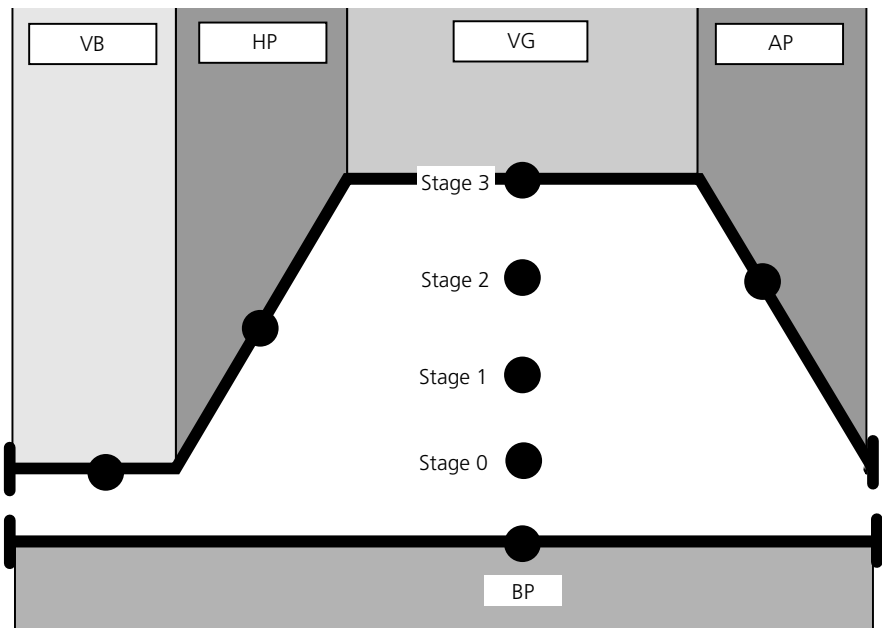
### Program Table

No	Program	VB min	HP	BP min	VG min	Stage	AP min
1	SR Adoro tempering program (with plaster model)	10:00	set ****	—	7:00	3	5:00 ****
2	Light-curing program	—	—	10:00	—	—	1:00 ****
3	SR Adoro tempering program (without plaster model)	10:00	set ****	—	7:00	3	5:00 ****
4	Individual curing program	0:00 to 10:00***	set ****	0:00 to 30:00**	0:00 to 30:00***	0 – 3	**** 1:00/5:00*

\* depending on the heating stage;  
\*\*\*\* cannot be set

\*\* only at stage 0,

\*\*\* only at stage 1, 2, 3,



VB = Precuring,

HP = Heating,

VG = Tempering,

AP = Cooling,

BP = Curing

Heat performance:\*

Stage 0 = Heater off

Stage 1 = approx. 80 °C / 176 °F

Stage 2 = approx. 95 °C / 203 °F

Stage 3 = approx. 104 °C / 219 °F

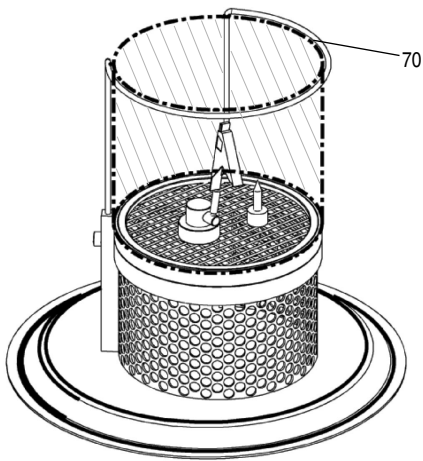
\* The temperatures were measured with a reference tooth (typical value) with a plaster model (P1) and without plaster model (P3).

## 5.6 Acceptable tempering space

The parameters (light and temperature) necessary for adequate curing and tempering are only ensured within the acceptable tempering space. The acceptable tempering space is defined by the tempering space limiter (70). The objects must be placed within the acceptable tempering space.

The necessary parameters (light and temperature) are only ensured if the plaster models used meet the following requirements:

- Lighter than 400 g
- Height below 70 mm
- Diameter smaller than 80 mm



Acceptable tempering space

# 6. Practical Use

## 6.1 Switching on/off

### Switching on

Put On/Off switch (22) on position 'I'.

### Indication of lamp operating hours

After being switched on, the apparatus performs a brief self-test. During this test, the display and the LEDs briefly light up. After that, the display will show four numbers (e.g. 0823). This means 823 lamp operating hours. After three seconds, the indication of the lamp operating hours changes to the stand-by indication.

### Stand-by indication

(- --)

The display shows three dashes and one empty field. The empty field is moving.

### Switching off

Put On/Off switch (22) on position '0'.

## 6.2 Curing

### 6.2.1 Standard program

#### Step 1

Place the object in the curing chamber. Observe the acceptable tempering space.\*

#### Step 2

Close the unit. The indicator for opened unit (40) must not be illuminated as otherwise the program cannot be started.

#### Step 3

Select the program by pressing P1 (42), P2 (53), or P3 (44).

#### Step 4

Press Start (46). Then, the remaining program time will be indicated on the display.

#### Step 5

Once the program has been completed, open the unit and remove the object.



**Burn hazard**  
Please note that the objects may become very hot. Use tongs or tweezers to remove the objects.



\* The object must not surpass the acceptable tempering space. If this is not observed, the object or the unit will be damaged when the unit is closed.

## 6.2.2 Individual program (P4)

### Step 1

Place the object in the curing chamber. Observe the acceptable tempering space.\*

### Step 2

Close the unit. The indicator for opened unit (40) must not be illuminated as otherwise the program cannot be started.

### Step 3

Select the program. Press P4 (49). The set parameters will appear on the display. If changing of the parameters is not necessary you may proceed with pressing Start (46). If the parameters have to be changed, proceed with Step 4.

### Step 4

Press Enter (48).

### Step 5

Select the heating stage with the '-' or '+' keys and confirm with Enter. Now the next parameter to be set starts to blink on the display. Set the required values for the individual parameters (observe the values in the enclosed table) and confirm with Enter. Now the set parameters light up.

### Step 6

Press Start (46) and wait until the program starts. After that, the remaining program time will be indicated in the display.

### Step 7

Once the program has been completed, open the unit and remove the object.



**Burn hazard**  
Please note that the objects may become very hot. Use tongs or tweezers to remove the objects.



\* The object must not surpass the acceptable tempering space. If this is not observed, the object or the unit will be damaged when the unit is closed.

## 6.3 Switching the buzzer on/off

The buzzer can be switched on or off as desired.

### 6.3.1 Switching on

To activate the buzzer, proceed as follows:

1. Switch off the unit (put On/Off switch on position '0')
2. Press Start and hold down the key
3. Put On/Off switch on position 'I'
4. Release Start key

### Switching off

To deactivate the buzzer, proceed as follows:

1. Switch off the unit (put On/Off switch on position '0')
2. Press Stop and hold down the key
3. Put On/Off switch on position 'I'
4. Release Stop key

## 6.4 Buzzer upon premature opening during the cooling phase

If the chamber is prematurely opened during the cooling phase, a warning buzzer sounds. This signal cannot be acknowledged. As soon as the hood is closed again, the program (cooling phase) continues and the buzzer stops.

Wait until the cooling phase (5 min.) has finished.



On premature interruption of the program (e.g. power failure), the curing chamber must be allowed to cool down as otherwise the starting temperature is too high.

# 7. Maintenance, Cleaning, and Diagnosis

This chapter describes the user maintenance and cleaning procedures. All other tasks must be performed by qualified service personnel at a certified Ivoclar Vivadent Service Center.

## 7.1 Monitoring and maintenance

The time for these maintenance procedures depends on the frequency of use and the working habits of the users. For that reason, the recommended times are only approximates.

**Disconnect power before maintenance and cleaning, since there is a risk of electrical shock.**

What	Part	Frequency
Check all plug-in connections for correct fit.	Power plug	Weekly
Check the switch-off mechanism by opening the curing chamber during program operation. If the fan continues to work, the safety switch (interlock) is defective. In this case, contact your local Ivoclar Vivadent Service Center.	Interlock	Weekly
Check the infrared heater (26) for damage of the glass.	Infrared heater (26)	Before the first operation. Weekly
Check temperature and light performance	Test Set	Every 6 months

## 7.2 Cleaning



The unit may only be cleaned when it is cool, since there is burn hazard. Do not use any cleaning solutions. The heater must not be touched, as hand sweat considerably shortens the life cycle of the unit.

The following parts have to be cleaned from time to time:

Item	Frequency	Cleaning material/measure
Dust filter	Monthly	Batting or replacing
Housing surfaces	If required	Cloth
Magnet and counterpiece	If required	Cloth
Reflector	If required	Cloth



Use only original Ivoclar Vivadent dust filters.



## 7.3 Changing the lamps

The unit is equipped with a sensor that automatically checks the performance of the lamps. As soon as the performance drops below a certain value, the display indicates a corresponding Error message, e.g. Er11, Er12, Er13. Then, the lamps have to be replaced.



### One defective lamp

For technical reasons, the lamps are arranged in two groups consisting of four lamps each.

That means that all four lamps stop working if one lamp is defective. The defective groups can be determined by observing the lamps through the viewing window (1).

### Acceptable lamp operating hours

If all eight lamps light up, although Er11 or Er14 has been displayed, the light performance is inadequate and the lamps have reached the end of their life cycle. Replace all lamps.



Disconnect power during changing of the lamps and if the unit has to be opened.



Make sure that the lamp protection is correctly mounted, since otherwise the unit cannot be correctly closed.

### Description of how to change the lamps

#### Step 1

Disconnect power.

#### Step 2

Remove the eight screws (36) of the lamp protection.

#### Step 3

Remove the first lamp of the defective group from its socket (19) and position the new one.

#### Step 4

Close swivel arm with the curing chamber.

#### Step 5

Connect power.

#### Step 6

Start Program P2.

#### Step 7

Look through the viewing window to make sure that the correct lamp has been replaced. If all lamps light up, continue with Step 11.

#### Step 8

If one group of lamps still remains dark, interrupt the program by pressing Stop.

#### Step 9

Disconnect power.

#### Step 10

Repeat Steps 4 to 10 until the defective lamp has been found.

#### Step 11

Interrupt program by pressing Stop (47)

#### Step 12

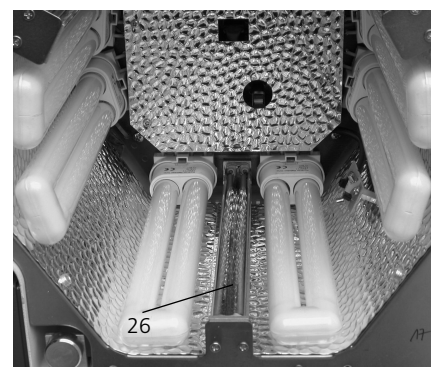
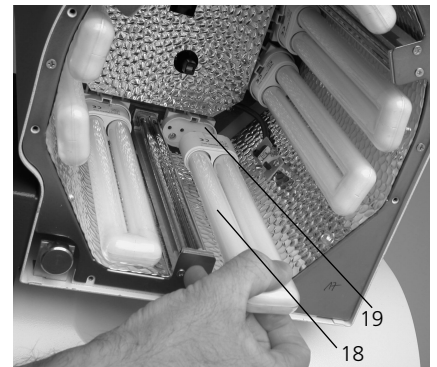
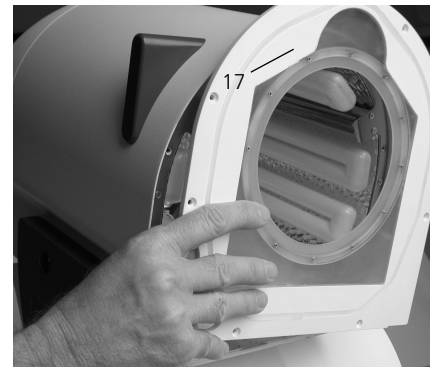
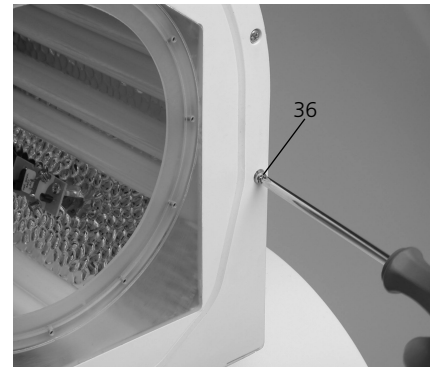
Disconnect power.

#### Step 13

Mount the lamp protection (17) with the corresponding screws (36).

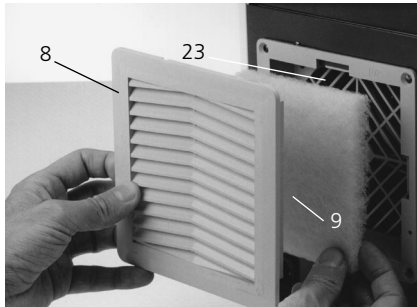
#### Step 14

Connect power.



## 7.4 Changing the dust filter

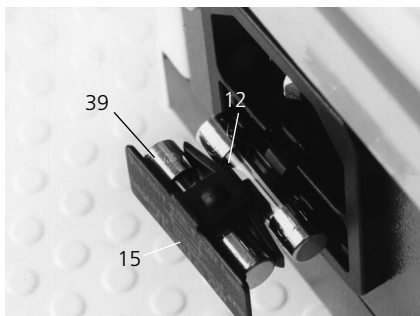
Remove filter (8) from the unit with a firm tug. Clean filter pad (9) or replace it. Remount the filter..



The unit may only be operated with the dust filter.

## 7.5 Changing the fuse

Disconnect power cord (13). The fuse holder (15) is located in the power socket of the unit (10). Push the lateral fuse stop (14) in the direction of the arrow using a screwdriver. The fuse holder (15) is thus released and may be removed from the unit. Check fuse (12). Replace defective fuse and insert the new fuse with its holder into the power socket (10) until it snaps into place.



**Important**  
Use only fuses with test labels according to the respective values specified in 'Technical Data' (Chapter 9.2).

## 7.6 Calibration

In order to ensure optimum tempering even after prolonged periods of time, the required light performance and the corresponding tempering temperature should be reached. The temperature sensor of the unit may be subject to small changes after prolonged use, which affect the tempering temperature. The lamps are also subject to a certain aging process, which may compromise the light performance.

These two parameters can be checked any time by the user with the help of the Test Set specifically developed for that purpose.

Therefore, we recommend checking the light performance and tempering temperature using the Test Set every six months.

The application of the Test Set is described in the corresponding note accompanying the Test Set (81). Please observe these instructions when performing the calibration.

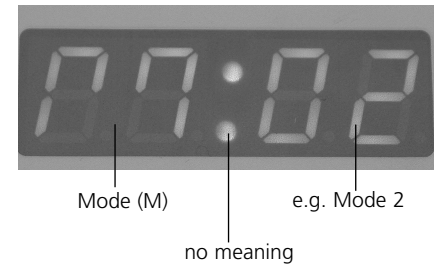
Procedure in case of negative test results:

- If the light performance is inadequate, change all the lamps.
- If the tempering temperature is inadequate, adjust the temperature with the help of the special mode (No. 2). Please observe the table in Chapter 7.7 for that purpose.

## 7.7 Special configuration modes

With these special modes (functions of the unit), certain configuration procedures may be performed and information shown on the display.

The desired mode is activated as follows: Press the two keys according to the table below, while simultaneously switching on the unit. The display now briefly (3 seconds) indicates the corresponding mode.



Mode (Function)	Key Combination	Indication on the Display	Function
1	P1 and P2	The current number of lamp operating hours is indicated.	After changing the lamps, the counter has to be reset to 0 using the '-' key.
2	P3 and P4	The current calibration value of the tempering temperature is indicated.	If the Test Set results have shown an incorrect tempering temperature, the temperature can be adjusted using key '-' and '+'. The new calibration value has to be confirmed with Enter.
3	START and STOP	Within 3 seconds, the 3 software versions of the unit are indicated one after the other.	Information about the software version.

The active mode may only be ended by switching off the unit.

# 8. What if...

This chapter will help you to recognize malfunctions and take appropriate measures, or, if possible, to perform some repairs.

## 8.1 Technical malfunctions

Description	Double-check	Action
Display does not work	Is the fuse for the electronic controls OK?	Check fuse.
Display does not work	Is the power cord correctly connected?	Check power cord for correct fit

## 8.2 Error messages

In case of a technical defect, the display will indicate an Error message with a number. The Error messages are explained in the following table:

## 8.3 Repairs

Repairs may only be carried out by a certified Ivoclar Service Center. Please refer to the addresses at the end of these Instructions.

If repairs during the warranty period are not carried out by a certified Ivoclar Service Center, the warranty will expire immediately.

Please also read the safety information in Chapter 2.

Error Number	Description	Possible Causes	Measures
10	Swivel arm not correctly closed	Curing chamber does not entirely close (e.g. something is placed on the bottom of the unit), or the swivel arm has been opened during a program in progress (P1).	<ul style="list-style-type: none"> <li>– Remove item</li> <li>– Do not open the swivel arm during a program in progress</li> </ul>
11	Light performance too low	<ul style="list-style-type: none"> <li>– At least one lamp is not correctly mounted in its socket</li> <li>– At least one lamp per group (group of four) is defective</li> <li>– The maximum number of acceptable lamp operating hours has been surpassed</li> <li>– Unacceptably high ambient temperature</li> <li>– Unacceptably low supply voltage</li> </ul>	<ul style="list-style-type: none"> <li>– Secure lamp correctly in its socket (see Point 7.3)</li> <li>– Replace defective lamp (see Point 7.3)</li> <li>– Replace all lamps</li> </ul>
12	No light	<ul style="list-style-type: none"> <li>– At least one lamp per group (group of four) is not correctly mounted in its socket</li> <li>– At least one lamp per group (group of four) is defective</li> <li>– Light sensor or electronic controls defective</li> </ul>	<ul style="list-style-type: none"> <li>– Secure lamp correctly in its socket (see Point 7.3)</li> <li>– Replace defective lamp (see Point 7.3)</li> <li>– Contact your local Ivoclar Vivadent Service Center</li> </ul>
14	Maximum number of acceptable lamp operating numbers has been surpassed	Maximum number of acceptable lamp operating numbers has been surpassed	<p>Replace all lamps with new ones (see Point 7.3) and reset the counter for the lamp operating house to 0 using 'Mode 1'.</p> <p>Until the new lamps are available, error message 14 may be acknowledged by pressing 'STOP'. After that, the unit may temporarily be used again. However, error message 14 will reappear each time the unit is switched on to remind the user of the required lamp replacement.</p>
21	Temperature in the curing chamber is too high	<ul style="list-style-type: none"> <li>– Dust filter is dirty</li> <li>– Air vents are blocked</li> <li>– Fan is defective</li> <li>– Unsuitable location of the unit</li> </ul>	<ul style="list-style-type: none"> <li>– Clean dust filter (see Point 7.4)</li> <li>– Remove obstacle from air vents</li> <li>– Contact the Service Center</li> <li>– Select a suitable location (see Point 4.2)</li> </ul>
22	Heater does not heat up	<ul style="list-style-type: none"> <li>– Heaters are defective</li> <li>– Temperature sensor is defective</li> </ul>	<ul style="list-style-type: none"> <li>– Contact the Service Center</li> <li>– Contact the Service Center</li> </ul>
23 50 97 98 99	Electronics	<ul style="list-style-type: none"> <li>– Error in the electronic components</li> </ul>	<ul style="list-style-type: none"> <li>– Switch off the unit, wait for 1 minute, and switch on again</li> <li>– Contact the Service Center</li> </ul>

# 9. Product Specifications

## Lumamat 100

This chapter contains all the relevant product specification.

### 9.1 Delivery form

- 1 Lumamat 100
- 1 Power cord
- 1 Extra fuse
- 1 Extra lamp
- 1 Screw driver
- 1 Operating Instructions
- 1 Warranty card
- 1 Standard accessories set
- 1 Test set

#### Colours:

Standard colour:	
White	RAL 9016
Special colours:	
Salmon	RAL 3014
Aquamarine	RAL 5014
Turquoise	RAL 6027

### 9.2 Technical data

*Power supply*  
*Single-phase alternating current:*  
220–230 V / 50–60 Hz  
100 V / 50–60 Hz  
110 V / 50–60 Hz  
120 V / 50–60 Hz

*Tolerated voltage fluctuations:*  
+/- 10 %

*Power consumption:*  
max. 750 W

*Type of lamp:*  
Fluorescent lamps (only use Ivoclar Vivadent lamps)

*Electrical fuses:*  
Value for all voltage versions:  
For 220–230 V: T 5A  
Has to comply with IEC 127  
For 100–120 V: T 8A  
Has to be UL and CSA listed.

*Dimensions of fuses:*  
Diameter 5 x 20 mm

*Dimensions:*  
Width: 323 mm  
Depth: 440 mm  
Height:  
closed 272 mm  
open 540 mm

*Lightwave range:*  
400–580 nm

*Weight:*  
13.4 Kg

### 9.3 Acceptable operating conditions

Acceptable temperature range  
5–40 °C / 41–104 °F

Acceptable humidity range  
Maximum relative humidity at 31 °C (87 °F), gradually decreasing to 50 % at 35 °C (95 °F), condensation excluded.

Acceptable ambient pressure  
The unit has been tested for use at altitudes of up to 2000 m above sea level.

### 9.4 Acceptable transportation and storage conditions

Acceptable temperature range  
-30 – +80 °C (-22 – +176 °F)

Acceptable humidity range  
Maximum relative humidity at 31 °C (87 °F) gradually decreasing to 50 % at 40 °C (104 °F), condensation excluded.

Acceptable ambient pressure  
500-1060 mbar.

Use only original packaging with the respective foam material for shipping purposes.

### Safety information

This apparatus has been constructed according to the following directives:

- Directive 73/336/EEC, low-voltage guidelines
- Directive 89/336/EEC, radio protection /electromagnetic compatibility

Furthermore, the following standards were observed:

- IEC 61010-1
- UL 3101-1
- CSA 1010.1

# Ivoclar Vivadent – worldwide

**Ivoclar Vivadent AG**  
Bendererstrasse 2  
FL-9494 Schaan  
Liechtenstein  
Tel. +423 235 35 35  
Fax +423 235 33 60  
www.ivoclarvivadent.com

**Ivoclar Vivadent Pty. Ltd.**  
1 – 5 Overseas Drive  
P.O. Box 367  
Noble Park, Vic. 3174  
Australia  
Tel. +61 3 979 595 99  
Fax +61 3 979 596 45

**Ivoclar Vivadent Ltda.**  
Rua Maestro João Gomes de  
Araújo 50; Salas 92/94  
Sao Paulo, CEP 02332-020  
Brasil  
Tel. +55 11 69 59 89 77  
Fax +55 11 69 71 17 50

**Ivoclar Vivadent, Inc.**  
23 Hannover Drive  
St. Catharines, Ont. L2W 1A3  
Canada  
Tel. +1 800 263 8182  
Fax +1 905 988 5411

**Ivoclar Vivadent Marketing Ltd.**  
Calle 134 No. 13-83, Of. 520  
Bogotá  
Colombia  
Tel. +57 1 627 33 99  
Fax +57 1 633 16 63

**Ivoclar Vivadent SAS**  
B.P. 118  
F-74410 Saint-Jorioz  
France  
Tel. +33 450 88 64 00  
Fax +33 450 68 91 52

**Ivoclar Vivadent GmbH**  
Dr. Adolf-Schneider-Str. 2  
D-73479 Ellwangen, Jagst  
Germany  
Tel. +49 (0) 79 61 / 8 89-0  
Fax +49 (0) 79 61 / 63 26

**Ivoclar Vivadent UK Limited**  
Meridian South  
Leicester  
LE3 2WY  
Great Britain  
Tel. +44 116 265 40 55  
Fax +44 116 265 40 59

**Ivoclar Vivadent s.r.l.**  
Via dell'Industria 16  
I-39025 Naturno (BZ)  
Italy  
Tel. +39 0473 67 01 11  
Fax +39 0473 66 77 80

**Ivoclar Vivadent S.A. de C.V.**  
Av. Mazatlán No. 61, Piso 2  
Col. Condesa  
06170 México, D.F.  
Mexico  
Tel. +52 (55) 55 53 00 38  
Fax +52 (55) 55 53 14 26

**Ivoclar Vivadent Ltd**  
12 Omega St, Albany  
PO Box 5243 Wellesley St  
Auckland, New Zealand  
Tel. +64 9 630 52 06  
Fax +64 9 630 61 48

**Ivoclar Vivadent Polska Sp. z.o.o.**  
ul. Jana Pawla II 78  
PL-01-501 Warszawa  
Poland  
Tel. +48 22 635 54 96  
Fax +48 22 635 54 69

**Ivoclar Vivadent S.A.**  
c/Valderribas 82  
E-28007 Madrid  
Spain  
Tel. +34 91 513 10 08  
Fax +34 91 552 64 07

**Ivoclar Vivadent AB**  
Dalvägen 16  
S-169 56 Solna  
Sweden  
Tel. +46 8 514 93 930  
Fax +46 8 514 93 940

**Ivoclar Vivadent, Inc.**  
175 Pineview Drive  
Amherst, N.Y. 14228  
USA  
Tel. +1 800 533 6825  
Fax +1 716 691 2285

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This apparatus has been developed solely for use in dentistry. Start-up and operation should be carried out strictly according to the Instructions for Use. Liability cannot be accepted for damages resulting from misuse or failure to observe the Instructions. The user is solely responsible for testing the apparatus for its suitability for any purpose not explicitly stated in the Instructions. Descriptions and data constitute no warranty of attribute and are not binding.

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