TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS

Otoflash

en **English**

Otoflash

This device documentation is part of the device and must be enclosed when selling or passing on the device.

- The device has been designed solely for use in dental laboratories and comparable institutions for research, commercial and training purposes. The device must only be operated by dental professionals; trainees and other persons operating the device must be supervised.
- The operating instructions must be read and understood before the device is used. This applies, in particular, to **Safety Instructions**. Damages caused by failure to observe these operating instructions will invalidate any and all warranty claims. We shall not accept any liability for any resulting consequential damages.

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General Information

Importance of the operating Instructions

These operating instructions cover all the information that is necessary according to the relevant regulations for the safe operation of the device described herein.

The operating instructions are a part of the device. The operating instructions should therefore

- always be kept at hand near the device until the device is disposed of,
- and should be passed on with the device when it is sold, transferred or rented/leased out.

Contact the manufacturer if you are unsure about anything in the operating instructions.

We welcome any suggestions or contributions; please feel free to contact us. Your effort will help us make the operating instructions more user-friendly and respond more effectively to your needs and requirements.

Target group

This document is directed toward everyone who works with this device or performs service tasks that are described in this document.

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Manufacturer:

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Tel. +49 89 74 4145-0
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Conventions

These operating instructions contain references to residual hazards, important user tips and handling instructions that are identified with the following symbols and words.

⚠ DANGER

This reference identifies hazards that can cause serious bodily injury or death if the relevant hazard instructions are not followed or not followed properly.

⚠ WARNING

This reference identifies hazards that can cause bodily injury or property damage if the relevant hazard instructions are not followed or not followed properly.

⚠ CAUTION

This reference identifies only those hazards that are potential damaging to property and the environment.

NOTE

This symbol identifies user tips and particularly useful information. It helps you optimally exploit all the functions of your machine.

1. Sequential actions are described in sequentially numbered paragraphs.

→ Cross-references are identified with this symbol.

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Warranty and Liability

Our "General terms and conditions of sale and delivery" apply. These are made available to the customer upon completion of the contract, at the latest. Warranty and liability claims for personal injury and property damage are excluded if these are attributable to one or more of the following causes:

- Improper use of the device;
- Improper installation, commissioning, operating and maintenance of the device;
- Operating the device with safety installations/safeguards that are defective, improperly installed or inoperable;
- Failure to observe the notes contained in these operating instructions regarding the transport, storage, installation, commissioning, operation, service and maintenance of this device;
- Unauthorized structural modifications to this device;
- Inadequate monitoring/inspection of device parts that are subject to wear;
- Improperly performed repairs;
- Disastrous situations/emergencies caused by foreign objects or force majeure.

Intended use

This flashlight polymerisation device is intended solely for curing light-curable resins.

Any other use is strictly prohibited.

Any use deviating from the specified use is deemed improper use and is strictly prohibited.

Prohibited are:

- the use of the device if it is not in perfect condition or in case of safety-relevant device malfunctions,
- any operation without protective covers or protective equipment/safeguards,
- working with the device without wearing protective clothing,
- unauthorized modifications to the device,
- the assignment of unqualified personnel.

The manufacturer has no knowledge of any improper use up to this time.

Exclusion of liability in case of modifications

If a user or operating company modifies the flash-light polymerization device and such modification affects any aspect of the performance data or intended functionality within the context of the applicable standard, the person or organization making the modification is responsible for the reclassification and appropriate marking of the flash-light polymerization device and will subsequently be classified as the "manufacturer.

Safety instructions

Special safety instructions regarding this device

⚠ DANGER

Danger due to electric shock

Switch the device off and disconnect it from the power supply before carrying out any service or maintenance work!

⚠ WARNING

Risk of injury

Do not, under any circumstances, look directly into the rays of the flash-lights (risk of damage to eyes)

⚠ WARNING

Risk of injury

The polymerization chamber may heat up after longer radiation periods.

It is thus recommended to wait a few seconds before opening the lid after the end of the polymerization process (the fan continues to run).

⚠ CAUTION

Property damage

- The device will only work when the flash module is completely inserted.
- Likewise, the lid must be closed all the way.
- Never operate the device without the flash module.

⚠ CAUTION

Property damage

- The dust filter behind the display on the front of the device should be kept clean.
- The dust filter should be cleaned or replaced regularly depending on the degree of soiling (see service and maintenance)

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Device description

Otoflash

Otoflash is a flash-light polymerization device for the curing of light-curable resins. In the operating mode, two flash bulbs fitted at the bottom produce ten flashes per second. The respective light radiation at a wavelength of 300-700 nm is very intense.

Compared to other light sources, this achieves a better curing of the materials, resulting in very good physical characteristics and reduced residual monomer content.

Fig. 1 Otoflash

Scope of delivery and extras

Scope of delivery

Otoflash REF

100, 115, 230 VAC, 50/60 Hz 26465

with:

- Polymerization tray with UVB blockers 360N2 (2x)
- Connection hose 2.5 m with quick coupling NW 7.2
- Translation of the original operating instructions
- Power cable (1x Europe, 1x USA/Japan)

Accessories

Cylinder pressure reducer for nitrogen 20349

Wear Parts

Flash module 20354

NOTE

All wear parts listed here will not be replaced free of charge under the warranty or BEGO guarantee.

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Technical data

Nominal voltage	100,115, 230 Volt AC
Nominal frequency	50/60 Hz
Power consumption	approx. 250 W
Dissipated power	approx. 200 W
Image frequency	10 flashes per second
Lifetime of the flash tubes	average approx. 250 hours
Digital timer	adjustable from 1 to 9999 flashes
Size of the polymerization chamber	approx. 120 x 120 x 50 mm
Spectral distribution	300 - 700 nm, Maximum between 400 and 500 nm
Dimensions	approx. 310 x 310 x 140 mm
Weight	approx. 6 kg
Option protective gas	minimum nitrogen N2, 2.6 N2, 2.6 Gas pressure: 1.0-1.2 bar Gas flow: approx. 10 l/min

Installation

NOTE

Ensure ample space to the wall so that the lid can be opened without being obstructed and that there is sufficient space for ventilation.

Electricity

⚠ DANGER

Danger due to electric shock

Check if the specifications on the type plate correspond to the power supply network before connecting the device. Consult an electrician in case of uncertainty.

The device is subject to protection class I and must only be connected to properly grounded power sources.

Commissioning

Before commissioning, set the device to the correct input voltage using the selector switch (12) on the back of the device.
When moving the device from colder to warmer ambient temperatures (e.g. transport in the winter), allow it to acclimatize for a minimum of 2 hours (to prevent the risk of flashovers inside the device).

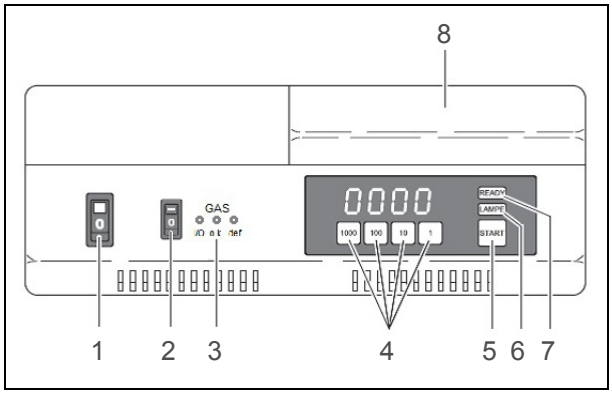

Fig. 2 Front side

1. Power switch (mains switch)
2. Protective gas switch
3. Protective gas indicator lights
4. Display with keypad
5. Start button
6. Lamp indicator lights
7. Ready indicator
8. Polymerization chamber

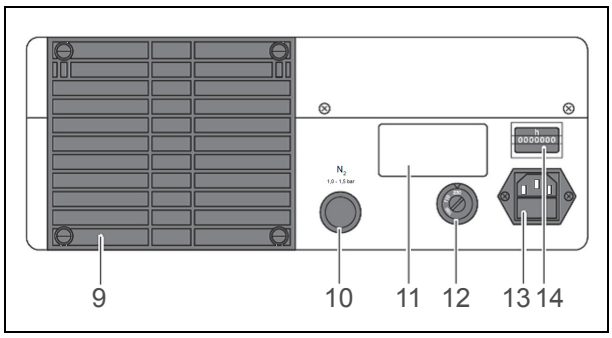

Fig. 3 Rear side

9. Fan
10. Protective gas connection
11. Type plate
12. Selector switch (100, 115, 230 V)
13. Mains socket with fuse
14. Operating hour meter

Holding trays:

2 Plexi trays with UVB blockers are available, labelled 360N2.

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Operation– Use with timer

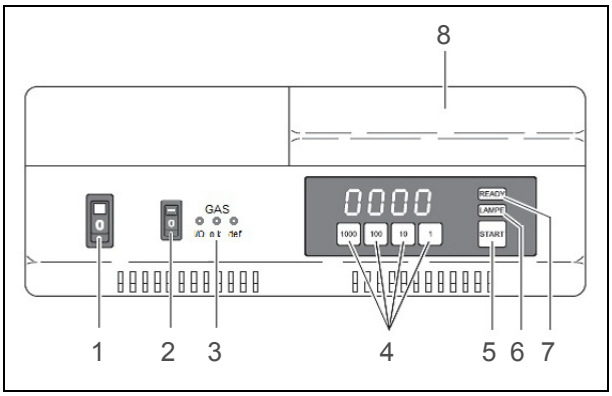

Fig. 4 Front side

Setting the timer

The device is switched on with the power switch (1), the green indicator labelled "Ready" (7) will light up and a 4-digit figure will appear on the display (4). This figure indicates the number of flashes. The number of flashes can be programmed any number between 0 and 9999 by pressing the buttons 1000, 100, 10 and 1.

Operating mode

The program is started by pressing the start button (5). The timer will start to count down with every flash. When the programmed number of flashes have been completed, an acoustic signal will sound three times and the word "End" will appear on the display. Afterwards, the timer will be set to the initially programmed number of flashes again. If the lid is opened during the process, the entire device will immediately be disconnected from the power supply (except the timer), the word "open" appears on the display and a long acoustic signal will sound. Thus,the program can be interrupted at any time by opening the lid. When the lid is subsequently closed again, the program will return to the initially programmed number of flashes.

Error message

The red field on the display labelled lamp (6) will light up if one or both of the flash bulbs are defective.

Protective gas option

In addition to the operating controls and installations listed up to this point, the protection gas option also has the following component:

A quick coupler connection (nominal width 7.2) for a nitrogen cylinder located on the back of the device.

⚠ WARNING

Risk of injury

Use a pressure reduction valve, max. allowed pressure 8 bar.

Set the pressure regulating valve to 1.0 to 1.2 bar and connect the device to the nitrogen cylinder using a quick coupler (not included in the scope of delivery).

A control panel for protective gas is located between the power switch and the display on the front of the device. The protective gas is added with the switch. The switch has 3 switching states:

- Position I (switch turned to the top) and green LED on
- Position 0 (center position): no LED on
- Position II (switch turned to the bottom): no LED on

Switch position I:

The protective gas function, including the pre-flood function (rinsing the polymerization chamber with nitrogen for 30 seconds before light exposure) is activated.

After 30 seconds, the flash-light will start; simultaneously, the polymerization chamber will be flooded for another 60 seconds.

The yellow LED (labelled "ok") will be on during the inflow of protective gas; if the pressure is insufficient (< 0.8 bar) or if there is no gas flow, the yellow LED will go off and the red LED (labelled "def.") will light up. After a total of 90 sec. (60 sec after the light exposure has started), the flooding with N2 will be stopped automatically. The yellow LED will go off. Once the programmed light exposure time has elapsed, the flooding with N2 will be stopped as well, even if the light exposure time was < 60 sec.

Switch position 0:

The protective gas option is turned off,

Switch position II:

The protective gas function is activated, however without pre-flooding. The protective gas flows into the chamber with the start of the light exposure. The polymerization chamber will be flooded with the protective gas during the entire polymerization time. The yellow LED (labelled "ok") will be on during the inflow of protective gas; if the pressure is insufficient (< 0.8 bar) or if there is no gas flow, the yellow LED will go off and the red LED (labelled "def.") will light up (like with switch position i). Once the programmed light exposure time has elapsed, the flooding with N2 will be stopped as well.

The gas flow amounts to approx. 10-11 litres per minute (with 1.0 to 1.2 bar at the reducing valve) and the atmospheric oxygen in the tray will be displaced. This will prevent oxygen inhibitation and the surface of the workpieces will cure without oxygen inhibitation.

Notes:

Complete curing with protective gas only works when the Plexi trays are used.

Use nitrogen N2, technical standard with purity level 2.6 (purity level 99.6%) or higher.

The switch positions cannot be changed during the program sequence.

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Service and Maintenance

⚠ DANGER

Danger due to electric shock

Switch the device off and disconnect it from the power supply before carrying out any service or maintenance work!

Cleaning

All external surfaces can be wiped with mild household cleaner or alcohol.

⚠ CAUTION

Property damage

No liquids must enter the housing of the device or the power switches.

The flash module must only be blown out with compressed air with slight overpressure.

Never clean the flash bulbs with cleaning agents or cloths. Only the reflector may be cleaned with a lint-free cloth.

Dust filter

The filter fleece (1) located directly behind the display (accessible when the lid is open) should be blown out with compressed air and cleaned or replaced regularly, depending on the degree of dust.

Service/Customer service

Service must only be carried out by the manufacturer, BEGO or persons, who have been authorized by the manufacturer or BEGO.

Replacing the flash module

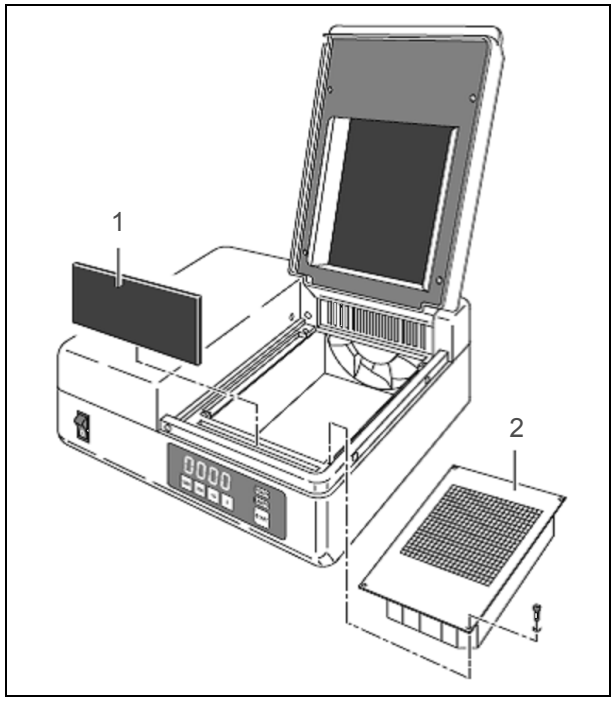

Fig. 5 Otoflash opened

1 Dust filter

2 Flash module

The flash bulbs can only be replaced as a complete flash module. Allow old flash bulbs to cool off, as needed; to that end, let the device run in standby mode for approx. 1 minute.

1. Switch the device off disconnect it from the power supply.
2. Open the lid.
3. Remove the 4 screws inside of the device and pull the flash module (2) up and out. Install the new flash module in reverse direction.
4. Important: Never touch the flash bulbs with the fingers as fingerprints and marks may burn into the glass otherwise. Should the flash bulbs be touched accidently, it is imperative to clean them with isopropyl or ethyl alcohol.
5. Disposal of the tubes: Used flash tubes are hazardous waste and must be disposed of in accordance with statutory regulations.

Troubleshooting

Please contact the local retailer if the device is not working properly or if you have any other questions,

Have servicing work carried out only by authorized BEGO workshops!

Technical service hotline:
+49 (421) 2028 - (270 … 274)

Disposal

Instructions for disposal of the device

(Applicable only within the European Union)

The adjacent symbol on the type plate of the device indicates the device, in accordance with the European directive on waste electrical and electronic equipment, may not be disposed of as normal domestic waste.

As a customer, you contribute to the protection of the environment when you dispose of the device correctly.

Disposal in Germany

The disposal lies within the responsibility of the user/operating company; the the relevant national legal requirements must be observed.

The device may be returned to the manufacturer for disposal (at no cost for the manufacturer).

Please contact the manufacturer when it is time to dispose of the device.

Disposal in other countries of the European Union

Please contact the company from which you purchased the device when it is time to dispose of it.

Resin waste treatment

Solidified resin can be disposed of with household waste. Do not contaminate standing or flowing waters with resin. Dispose of empty resin containers and contaminated materials in accordance with local regulations. Dispose according to EC Directives on waste and hazardous waste.

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