

Instruction Manual

Otoflash G171 UV-flash-device for Light Curing

Index

- 1) **General Information**
- 2) **Initial Operation of Device**
- 3) **Important Notes**
- 4) **Use with timer**
- 5) **Exchanging the flash module**
- 6) **Maintenance, Cleaning, Repair**
- 7) **Transport, Storing Disposal**
- 8) **Protective Gas Option**
- 9) **Technical Data**

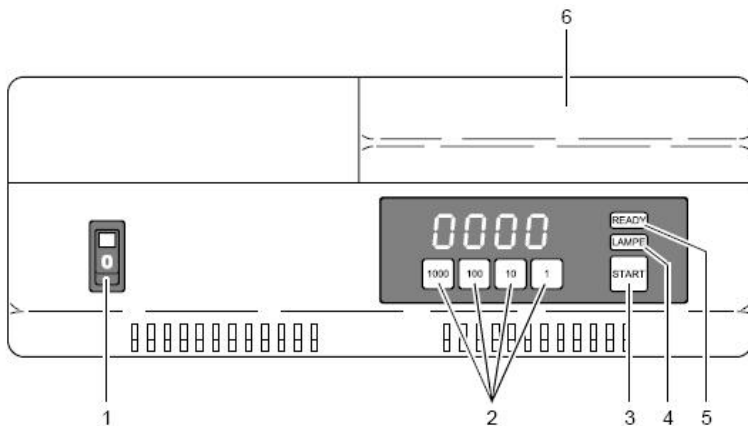
1) **General Information**

The device Otoflash G171 is a flash-light polymerisation device for the curing of light-curable resins. It has two flash bulbs at the bottom which are operated at a frequency of 10 flashes per second in the work mode. During the flashing, the flash bulbs generate a very intensive light radiation which ranges from 300 to 700 nm. As a result of this concentrated radiation a better and more thorough curing of the materials with very good physical values and reduced remainder monomer content is achieved with respect to other lamps.

2) Initial Operation of Device

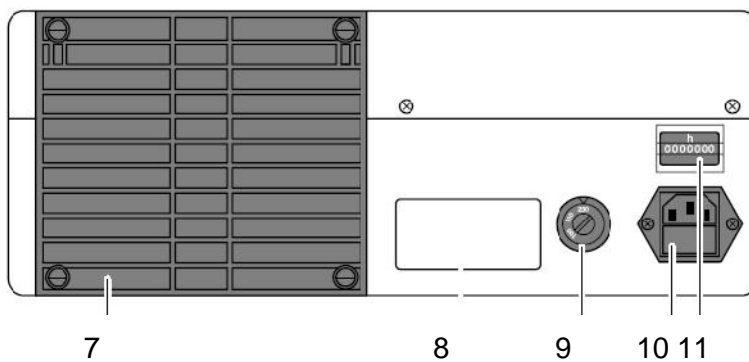
- Adjust to the correct voltage with the selection switch (back of device) before initial operation.
- After long exposure to low temperatures (e.g. transport in the winter), allow the device to acclimatise for approx. 2 hours in the operation room and only then switch it on. Otherwise there is danger of a condensation-induced short-circuit.

Front



- (1) Main switch
- (2) Display with keypad
- (3) Start button
- (4) Lamp control light
- (5) Ready display
- (6) Polymerisation chamber

Back



- (7) Ventilator
- (8) Identification plate
- (9) Transformer switch
(100,115,230 V)
- (10) Socket with fuse
- (11) Operating hour counter

Plexi-glass containers:

There are two plexi-glass containers available, with and without UVB-blocker. Depending on the requirements of the material (please consult the manufacturer's instructions of the material suppliers), the suitable container should be used so as to avoid, for example, the yellowing of the workpieces in the process. The containers are marked with the relevant article number at the top edge:

- 280N2: without UVB-block
- 360N2: with UVB-block

3) Important Notes

- **Do not look directly into the radiation of the flash bulbs due to the risk of eye damage.**
- **Longer irradiation may substantially heat up the polymerisation space. Therefore, it is advisable to wait a few seconds before opening the lid (fan continues working).**
- **For the operation of the device, the flash module must always be completely inserted. The lid must always be completely shut.**
- **Never operate the device without flash module.**
- **The dust filter (5) on the front of the device behind the display should always be kept clean (danger of over-heating and contamination.)**
- **Depending on dust accumulation, clean or replace the filter regularly (see also point 6).**

4) Use with timer

➤ Programming the Timer

The device is switched on with the main switch (1). The green display lights up indicating the word “ready” (5) and four digits appear on the display (2). This display indicates the number of flashes. These can be programmed by pressing the 1000, 100, 10 and 1 key to any number between zero and 9999.

➤ Work mode

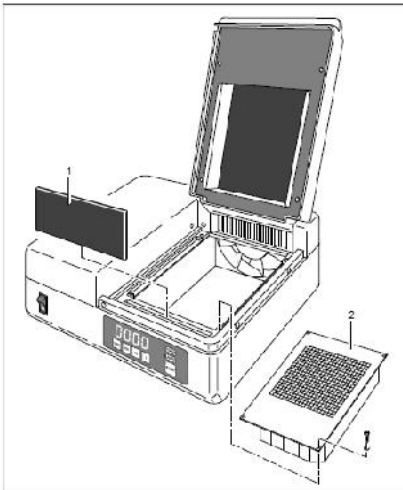
Press the start button to start the programme. The timer will subsequently count down by units of one for each flash. When the programmed flashes have finished a triple acoustic signal sounds and the word “end” appears on the display. The timer then jumps back to the previously programmed number of flashes. If the lid is lifted while the programme is running the whole device except for the timer is immediately cut-off from the mains. The word “open” appears on the display and a long acoustic signal will sound. This shows that the programme may be interrupted at any time by opening the lid. After closing the lid again, the programme reverts back to the originally programmed number of flashes.

➤ Error Signal

The red field on the display with the word “Lampe” (4) lights up when one or both of the lamps are defective.

5) Exchanging the flash module

- Attention: Before any service work, the device must be cut-off from the power supply.
- The flash bulbs can only be changed as a complete flash module.
- If needed, allow old flash bulbs to cool down. (Run the device in the stand-by mode for app. 1 minute.)
- Turn off device.
- Open the lid
- Loosen the four screws in the device and pull the flash module upwards. Insert the new flash-module in reverse order.
- Never touch the flash bulbs with your fingers. Otherwise fingerprints will burn into the surface. If this dies happen accidentally, be sure to clean the bulb by a soft lint-free cloth and isopropanol or ethyl alcohol.
- Disposal of the flash bulbs: Used flash bulbs are hazardous waste and must be disposed of in accordance with official regulations.



6) Maintenance

- Dust filter:

The filter fleece directly behind the display (accessible via opened lid) should be cleaned by blowing out by means of pressure air and/or exchanging regularly, depending on the amount of dust.

- Cleaning:

All outside surfaces can be wiped down with alcohol or household cleaners. Be careful: Do not let any liquid enter into the main switch or the inner device.

The flash module may only be blown-out with compressed air using slight over-pressure.

Never clean the flash bulbs with cleaning fluids or tissues. Clean the reflector surfaces only with lint-free cloth.

- Service/Maintenance:

Servicing may only be carried out by NK-Optik GmbH or by NK-Optik GmbH authorised persons.

7) Transport, Storing Disposal

➤ Transport

For transport and storing of up to 6 months, the following conditions hold:

Temperature: 0°C - 70°C

Relative humidity: 10% - 80%

Afterwards, values from operation conditions hold.

Temperature: + 10°C - 30°C

Relative humidity: 20% - 80%

➤ Storing is only permissible in closed rooms.

Protect device from humidity and wetness.

Do not expose device to strong jolts.

➤ Disposal of the device:

Once plastic parts and/or air grille are dismantled, floor and lid plates, as well as the anodized inner parts, flaps and tray are to be disposed of as metal waste. The rest is to be disposed of as electronic waste.

Environment relevant materials:

Component:	Material used:
Metal chassis parts:	Aluminium
Housing parts:	ABS
Transformer:	Copper, iron, polyamide, polyurethane
Capacitors:	Aluminium, polypropylene, polyurethane, resin with castor oil
Conductor board:	Epoxy resin

The disposal is to occur according to the respective national regulations.

Relevant disposal organizations are to be consulted.

All devices or components may also be sent back to the manufacturer for disposal purposes.

Shipping and handling is covered by sender.

8) Protective Gas Option

8.1) Purpose of the Protective Gas

In models with the Protective Gas Option, nitrogen gas will flow (when the protective gas is connected and the timer has been activated) into the acrylic glass container situated above the flash lamps, displacing the oxygen in the container. Exposure of the workpieces to oxygen during the hardening process can lead to oxygen inhibition at the surface, resulting in insufficient hardening and adhesive residue. Displacement of the oxygen by the nitrogen (N₂) protective gas prevents this oxygen inhibition.

Note: The gas flow rate is approximately 10-11 liters/minute with complete oxygen displacement requiring several seconds.

8.2) Components

In addition to the operating instructions and fittings discussed above, the Protective Gas Option also includes the following components:

On the back of the device: a quick coupling adapter (with a nominal diameter of 7.2 mm) for connection to a gas cylinder.

Warning: a pressure-regulating valve with a maximum permitted pressure of 8 bar must be used.

Set the pressure-regulating valve to 1.0-1.2 bar and connect the device to the nitrogen gas container using a quick coupling (not included).

On the front of the device: a control panel for the protective gas option, situated between the power switch and the display. The protective gas is turned on and off by means of this switch.

8.3) Operational settings

The switch has 3 operating positions:

Position I (switch pointed upwards)

- The green LED is illuminated.
- The protective gas function, including pre-flooding of the polymerization chamber (i.e. flushing of the chamber with nitrogen gas for a duration of 30 seconds prior to the hardening process), is switched on.
- After 30 seconds of pre-flooding the flash-light begins. The chamber continues to be filled with the protective gas for the duration of the hardening process.
- While the protective gas flow into the chamber is turned on, the yellow LED (labeled "ok") is illuminated. In case of an error, e.g. insufficient pressure (< 0.8 bar) or no gas flow, the yellow LED is extinguished and the red LED (labeled "def.") will light up.
- After a total of 90 seconds (30 seconds of pre-flooding and 60 seconds of hardening) the

flow of nitrogen stops automatically and the yellow LED extinguishes. The flow of nitrogen stops upon completion of the programmed hardening time, even if this time is less than 60 seconds.

Position II (midway position)

- No LEDs are illuminated.
- The protective gas function is switched off.

Position III (switch pointed down)

- No LEDs are illuminated.
- The flow of the protective gas is turned on but the pre-flow option is not; the protective gas flow into the polymerization chamber begins simultaneously with the hardening process.
- The chamber continues to be filled with the protective gas for the entire duration of the hardening process.
- During the flow of the protective gas the yellow LED (labeled “ok”) is illuminated. In case of an error, e.g. insufficient pressure (< 0.8 bar) or no gas flow, the yellow LED is extinguished and the red LED (labeled “def.”) will light up (as with Position I above).
- Upon completion of the programmed hardening time the flow of nitrogen is turned off.

Notes:

- Complete hardening by means of the protective gas functions only when the acrylic glass container is inserted.
- Only nitrogen gas, N₂, technical standard with a minimum quality level of 2.6 (purity of 99.6 %) may be used as protective gas for this device.
- During the hardening process the selected switch positions for the pre-flooding of the chamber cannot be changed.

9) Technical Data

Voltage:	100,115,230 Volts AC
Frequency:	50/60 Hz
Power consumption:	ca. 250 Watts
Dissipated power:	ca. 200 Watts
Flash frequency:	10 flashes per second
Life duration of flash bulbs	approx. 250 hours
Digital timer:	programmable from 1 to 9999 flashes
Size of polymerisation chamber:	ca. 120 x 120 x 50 mm
Spektral distribution:	300 - 700 nm, maximum between 400 and 500 nm
Measurements:	ca. 310 x 310 x 140 mm
Weight: Protective Gas Option	ca. 6 kg. Nitrogen N ₂ , 2.6 Pressure: 1.0-1.2 bar Flowrate: approx. 10 l/min)

NK-Optik GmbH
Isarstr. 2
82065 Baierbrunn/Germany
Phone: +49 (0) 89 744 145 - 0
Fax: +49 (0) 89 744 145 - 90
www.nk-optik.de
E-Mail: info@nk-optik.de

Status: July 2016