

# DENTAL LIGHT

# 300LED DENTAL LIGHT

TYPE  
320M UNIT MOUNT

## INSTRUCTIONS FOR USE



## IMPORTANT

Thank you for purchasing TAKARA BELMONT product.

- This manual provides operating instructions for the 300LED DENTAL LIGHT TYPE 320M.
- The instructions contained in this booklet should be thoroughly read and understood before operating the 300LED DENTAL LIGHT TYPE 320M.
- After the installation has been completed, keep this manual in a safe place and refer to it for future maintenance.
- If you have any questions about this manual or this product, please contact us. If manual becomes unreadable or is lost, please request a new manual by contacting your dealer.
- Installation should be conducted by authorized personnel only. Follow instructions on installation manual.

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## Intended Use of the Product

This product is an active therapeutic device intended for the exclusive use for diagnoses, treatments and relative procedures of dentistry. The product must be operated or handled by the qualified dentists or by dental staffs under the supervision of the dentist.

Such dentists or dental staffs should instruct and/or assist the patients to approach to and leave from the product.

Patients should not be allowed to operate or handle the product unless he/she is so instructed.

## Compliance with Directive

300LED DENTAL LIGHT compliance with the following directives, MDR(EU) 2017/745, RoHS Directive 2011/65/EU.

## Important Notes

In case of the troubles, please contact a Takara Belmont offices or your dealers.

Do not disassemble or attempt to repair.




















Disassembly, repair or modifications should only be done by a qualified repair technician.

Attempts at disassembly, repair or modifications may lead to abnormal operation and accidents.

## Symbols



Following symbols are used on the switches, labels and in this manual of 300LED DENTAL LIGHT.

Confirm the meaning of each symbol.

|   |  |   |  |   |  |   |                                      |
|---|--|---|--|---|--|---|--------------------------------------|
|  | General warning sign<br>*The base color is yellow.         |  | Caution<br>*The base color is yellow.  |  | Date of manufacture                                      |  | Name and address of the manufacturer |
|  | Separate collection of electrical and electronic equipment |  | Refer to instruction manual/booklet<br>*The color of black part is blue in the actual label. |  | Type of power, Direct current                            |  | European Authorized Representative   |
|  | Serial number  |  | Catalog number   |  | Comply with MDR (EU) 2017/745, RoHS Directive 2011/65/EU |  | Medical Device                       |
|  | Product name   |  | Rated voltage  |  | Rated input  |  | Classification                       |
|  | Product of Vietnam   |  | Designed by TAKARA BELMONT, JAPAN  |  | Electronic instructions for use                          |   |                                      |

# Safety Precautions

- Before use, read the “Safety precautions” carefully to ensure proper use.
- The following information is designed to ensure safe use of this product and to prevent injury and damage to you and others. The precautions contained here are classified with [WARNING], [CAUTION], [NOTICE] depending on the severity and degree of imminence of possible injury or damage resulting from improper use. Be sure to follow all the instructions for safe use.

| Classification of precautions  | Severity and degree of imminence of possible injury or damage   |
|--|---|
|  <b>WARNING</b> | This symbol indicates that “ignorance of these precautions may lead to severe injury or even death as a result of improper use.”                            |
|  <b>CAUTION</b> | This symbol indicates that “ignorance of these precautions may lead to mild or moderate physical injury or damage to property as a result of improper use.” |
| <b>NOTICE</b>  | This symbol indicates that “it is recommended to follow these precautions for safety.”  |

## **WARNING**

### **1. Be sure to turn off breakers for equipment in the clinic when this product will not be used for a long period of time**

Be sure to turn off breakers for equipment in the clinic when this product will not be used for a long period of time (following the completion of work, during the suspension of business, etc.).  
Insulation degradation may cause electrical fire.

### **2. Be sure to turn off the main switch upon completion of work or during work breaks**

Be sure to turn off the main switch upon completion of work or during work breaks.  
This prevents incorrect operation due to accidental contact and associated hazards.

### **3. Never disassemble, repair or modify this product**

Individuals other than certified repair technicians should not disassemble or attempt to repair and modify this product. This could lead to an accident, failure, electric shock or fire.

### **4. Use with caution on patients with a cardiac pacemaker**

Use this product with extreme caution on patients with a cardiac pacemaker. In the case of any abnormalities in patients during use, immediately turn off this product and discontinue use.

### **5. Do not direct the LED light source toward the eyes**

The LED is very bright. Do not direct the LED beam into the patient's or user's eyes.  
Doing so may cause trouble on them.

### **6. Ensure the maintenance of this product**

Execute the maintenance in accordance with this instruction manual and operating manual attached to each individual equipment ( Dental chair, Dental unit, etc..).  
Failure to maintain this product may lead to physical injury or property damage.

### **7. Protecting patient and user**

Follow this instruction manual to ensure proper use.

### **8. Always keep your eyes on a patient**

Keep a patient away from touching equipment or control switches

## Safety Precautions

### **WARNING**

#### **9. Use with caution in the presence of electromagnetic interference waves**

Do not place this product around equipment generating electromagnetic waves (including communications equipment, elevators, etc.) as incorrect operation of this product may occur in the presence of electromagnetic interference waves. Do not use equipment generating electromagnetic waves, such as mobile phones, around this product.

#### **10. Do not place an over load on the arm. Avoid rough handling**

Move the light arm smoothly. Do not lean an elbow or hang on to the light arm. This could cause damage to this light arm.

#### **11. Do not operate equipment with the device that emits electromagnetic wave**

Do not use electric surgical knife or laser knife with dental light. Light may turn on/off by itself due to malfunction of a sensor caused by electromagnetic interferences.

#### **12. Prohibition of maintenance**

During operation, repair and maintenance are prohibited.

### **CAUTION**

#### **1. Only experienced personnel should use this product**

Only dentists or other dental professionals should use this product.

#### **2. Do not smack or rub this product**

Do not smack or rub this product forcefully. This could cause damage to covers or defective function.

#### **3. Do not give an impact on this product**

Impact may damage to this product. Continuous impact may drastically shorten LED life.

#### **4. Do not grease**

Do not apply grease (when you hear noise from arm section). Newly applied grease may cause chemical reaction with factory applied grease. This may cause oil (grease) leak.

#### **5. Discontinue use if you feel that “something is wrong”**

Always be careful to inspect this product for looseness, rattling, tilting, wobbling, sounds, temperature, odors, etc. Immediately discontinue use at the first feeling that “something is wrong.”

#### **6. Be sure to operate switches with your hands**

Be sure to operate switches with your hands. Operation with body parts other than hands may cause damage or incorrect operation.

#### **7. Immediately wipe off drug solution when it comes into contact with this light**

Should drug solution or water comes into contact with this light, immediately wipe it off with a dry soft towel, etc. This could result in defective function or electric leakage as well as spotting or rusting.

## Safety Precautions

### CAUTION

#### 8. Cleaning of grease leak

If grease leaks from arm section, please wipe grease off.

#### 9. Irradiation light of LED

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

#### 10. Light of LED

The LED light emits strong light beam. Your body may react too sensitively, causing dizziness or nausea. In this case, lower the intensity or turn off. Be careful not to see a strong light for a long time.

### NOTICE

#### 1. Troubleshooting and contact information

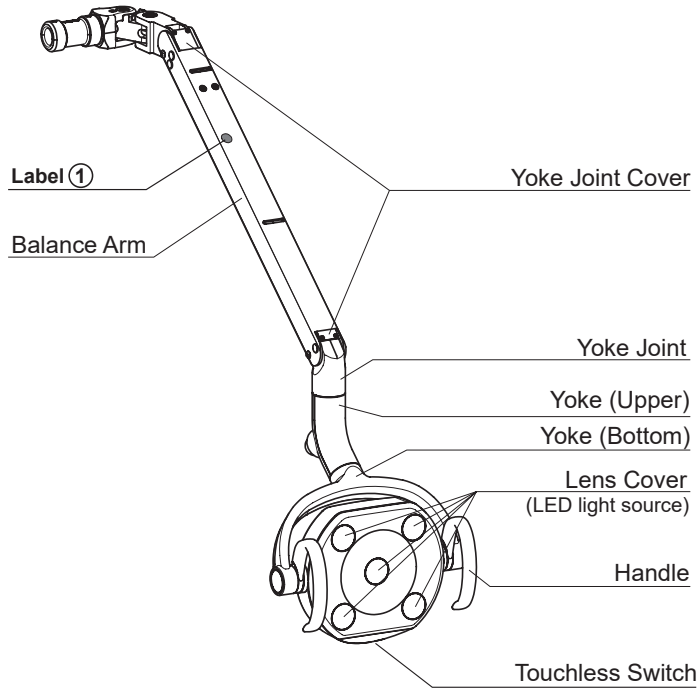
In the case of any problems, discontinue use, turn off the main switch and contact the dealer or our company.

#### 2. Discoloration of resin

Resin materials are used in external components of this product. Carefully selected materials are used; however, discoloration may occur for reasons such as natural deterioration or the adherence of drug solutions. To ensure use of the product for as long as possible, immediately wipe off any drug solutions adhered and avoid sunlight.

# Overview and Major Components

## ■ Overview and Major Components

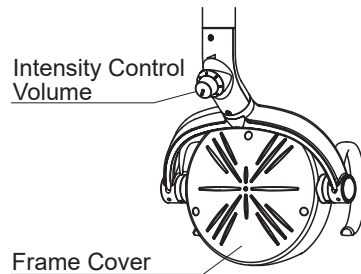


Label ①

Refer to instruction manual/booklet



### Light Head Section (Rear side)



## ■ Accessories

Adjustment Bar x 1, IFU INFORMATION x 1, Installation Manual x 1

\* keep an adjustment bar and manuals for future maintenance. Installation manual describes use of the adjustment bar.

## Description of Operation and Functions of Components

### ■ Main Switch

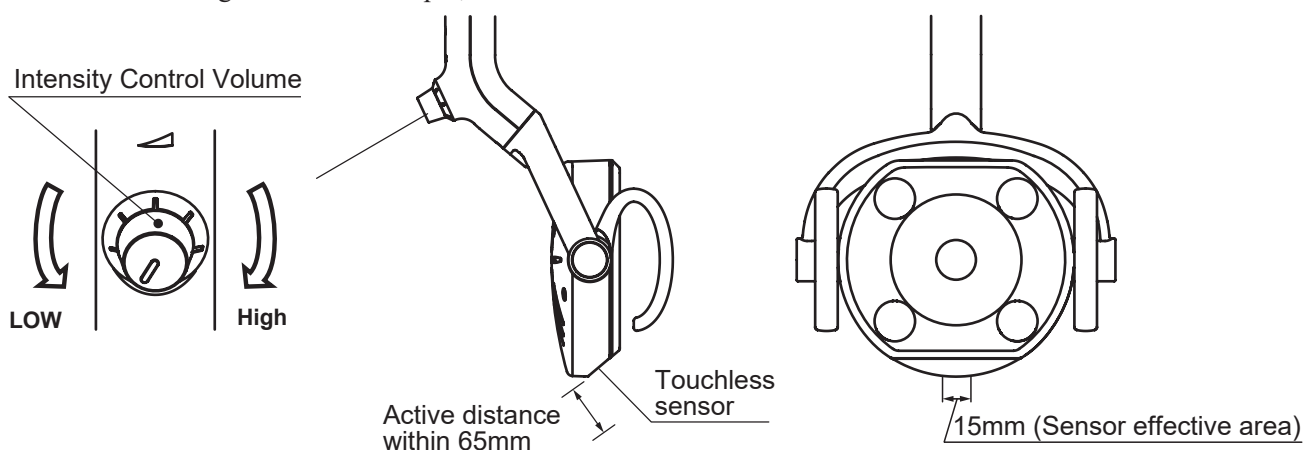
When the main switch of the dental unit is turned on, the dental light power is also turned on. Refer to the instruction manual of the dental unit for main power operation.

### ⚠ WARNING

- Be sure to turn off the main switch upon completion of work or during breaks. This prevents incorrect operation due to accidental and associated hazards.
- Be sure to turn off breakers for equipment in the clinic when this product will not be used for a long period of time (following the completion of work, during the suspension of business, etc.). Insulation degradation may cause electrical fire.

### ■ Functional Description

- 300LED dental light has two operation modes (normal treatment mode and composite mode).  
Normal treatment mode: Brightness can be adjusted steplessly between 3,100 ~ 28,000lux  
Composite mode: Brightness is kept at 4,300lux
- 300LED dental light is equipped with a touchless sensor switch. Turning on/off and transition to composite mode can be done with a touchless sensor switch. Place your hand in front of a touchless sensor. Effective sensing area is 65mm depth, 15mm width.



### ■ Operation

#### (1) Turn ON or OFF with Touchless Switch

The light can be turned on/off with a touchless switch. The sensor activates within the distance of 65mm from the surface. Let your hand pass by within 65mm from the touchless sensor to turn on the light. Let your hand pass by again to turn off.

#### (2) Mode Selection

During normal treatment mode, while the light is on, place and hold your hand within 65mm from the touchless sensor for certain time (2 seconds). The light intensity will be automatically reduced to the composite mode. To switch back to the normal treatment mode, place your hand by the touchless sensor for certain time (2 seconds) again.

Note: When the light is turned off in the composite mode, it goes on in the normal treatment mode when it is turned on again.

#### (3) Intensity control (Only for normal treatment mode)

It can adjust intensity between 3,100 ~ 28,000lux by step-less intensity control volume. The intensity is increased by turning intensity control volume clockwise. It is decreased by turning the intensity control volume counterclockwise. During composite mode, intensity can't be adjusted.



## Care and Maintenance

### ■ Cleaning and disinfecting the surfaces (except the lens cover / touchless switch)

To clean and disinfect the exterior of the product, wipe the surface with a soft cloth or paper towel moistened with FD366 manufactured by Dürr, and then wipe it with a dry cloth.

If the exterior is excessively dirty, moisten a soft cloth with water containing approx. 10% of neutral detergent, and wipe the exterior with the cloth. Then, wipe it with a cloth moistened with water and dry it completely with a dry cloth.

Never conduct any of the following acts during care.

In particular, any of the following acts performed on the lens cover may not only cause damage or staining, but also compromise the optical performance.

Use of the following items

Thinner, butanol, isopropyl alcohol, enamel remover, gasoline, kerosene or other volatile agents; acid, alkaline or chlorine-based detergents; disinfectants with strong metal corrosiveness (e.g., povidone iodine, sodium hypochlorite); waxes containing abrasive; sponges containing abrasive; etc.

Use of (scrub) brushes

May damage the product or render stains unremovable.

Leaving water or residual water containing cleanser on the product

May cause rust and failure in electrical parts.

Direct spraying of cleanser, etc.

Clean the surface with a soft cloth or paper towel moistened with detergent, and wipe it dry with a cloth.

If liquid enters the product, it may cause a malfunction or failure.

Confirm that the detergent has completely dried off before activating the product.

### ■ Cleaning the lens cover

Dry wipe the product with a dry soft cloth.

Do not use water or chemicals (including FD366 produced by Dürr and neutral detergents). Otherwise, compromised optical performance of the lens cover or damage may result.

### ■ Cleaning the touchless switch

Wipe off with a soft cloth dampened with water and tightly wrung out.

Do not wipe dry. It may cause damage, and damage may cause malfunction.

Do not use chemicals (including FD366 produced by Dürr and neutral detergents). It may cause malfunction or failure.

## Storage, Lifetime, Consumable, Stock Period of Parts and Disposal

### ■ Storage method

Strictly observe the following points when the product will not be used for a long period of time.

#### 1. Main Switch

- Be sure to turn off the main switch at the end of each work day.
- Strictly observe this instruction to prevent electric accidents.

### ■ Lifetime

The durable period of this product is 10 years (self-certification based on in-house data), provided regular maintenance and inspection is done. However, parts requiring periodical maintenance have different durability periods. See the section on maintenance and inspection (page 14).

### ■ Consumable parts

The consumable parts are predicted to be abrasion, deterioration, and changes in external appearance or damage through use. Please note that repair or replacement of these parts is not covered by warranty, and fees will be required.

\* The level and period of abrasion, deterioration or damage may differ depending on the usage environment and usage conditions of this product.

### ■ Stock period of parts

Our company will keep maintenance parts of the products such as consumables and periodical replacement parts, etc., for 10 years after sales.

Note : Maintenance parts means parts necessary for repair services for restoring the original conditions and functions of the product and maintaining those functions.

### ■ Disposing of equipment

When disposing the dental light, appropriately dispose complying with all current applicable regulations and local codes. In EU area, EU directive 2002/96/EC on waste electrical and electronic equipment (WEEE) is applied on this product. In this directive, environment conscious recycling/abandonment is obligated.

## Before Asking for Repairs

If any of phenomena described below has occurred, make the following checks before asking for repairs.

| Phenomenon  | Check point and result  | Action to be taken   |
|---|---|--|
| The light does not light up                           | Main switch is not on.  | Turn on the main switch.<br>(page 8)   |
| The light does not turn on/off from touchless switch  | Confirm distance of a touchless switch.   | Hand must pass by within 65mm from the touchless sensor surface.<br>(page 8) |
|   | Touchless sensor surface is dirty.  | Clean the touchless sensor surface.<br>(page 9)                              |
| The light intensity does not change                   | Light mode is set in composite mode   | Change to normal treatment mode and try it again.<br>(page 8)                |
| The light turned on/off its self                      | There is equipment having a mirror surface such as hand mirror around this product. | Remove the equipment having a mirror surface.                                |
| The light head movement (up/down, rotation) is tight. | The light has not been used for the last few days.                                  | Move light head for three four times.  |

If the dental light does not normally work even if actions were taken upon checkup stated above, then stop using the unit, turn off the main switch and contact your dealer or our office.



### WARNING

**Disassembly, repair or modifications should only be done by a qualified repair technician.  
Attempts at disassembly, repair or modifications may lead to abnormal operation and accidents.**

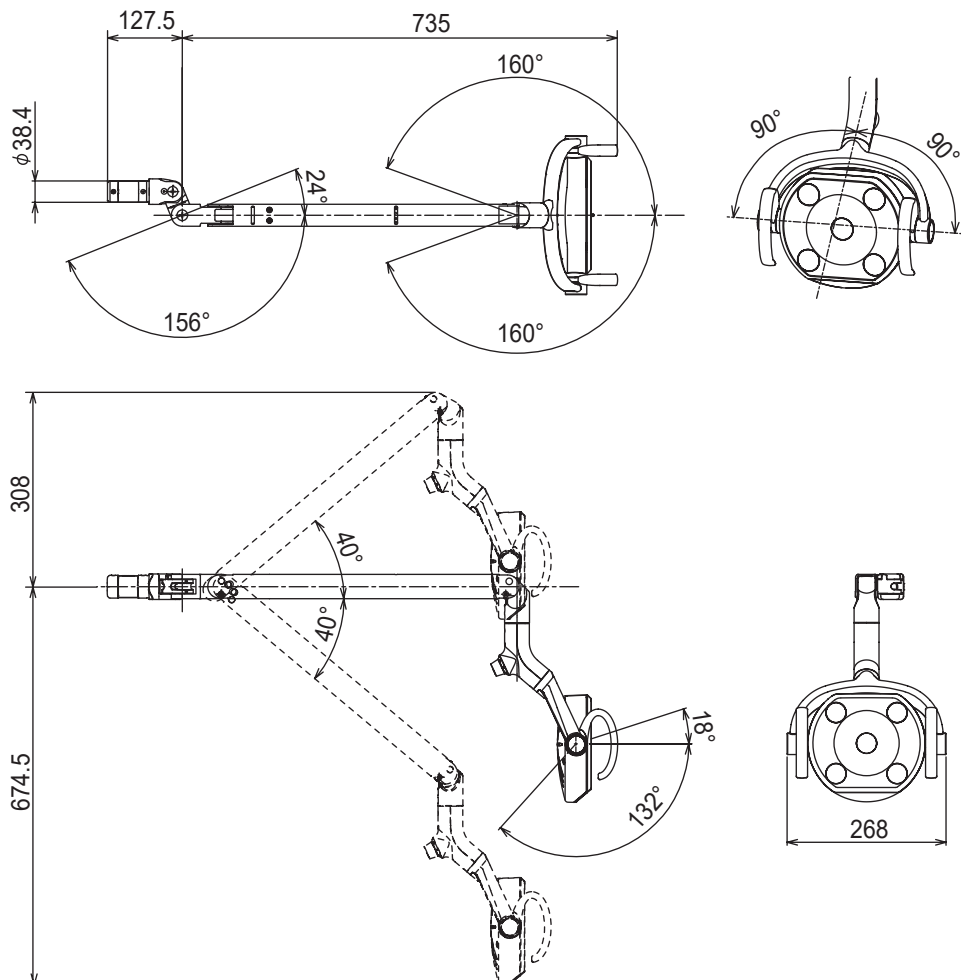
# Specifications

- **Control No.** : AL-320MR-EUN  
This product power is supplied from CREDIA G1
- **Rated Voltage** : DC19V
- **Rated Input** : 0.72A
- **Weight** : 3.5kg
- **Light Source** : LED (5 LEDs)
- **Optical Performance** : Focal Distance 650mm  
: Light Intensity (Normal treatment mode) 3100 ~ 28000 Lux  
: Light Intensity (Composite mode) 4300 Lux  
: Correlated Color Temperature 5000K
- **Light Pattern** : 85mm x 155mm
- **Protection class against electric shock** : Class I Equipment.
- **Usage environment** : Temperature 0 ~ 40°C  
Humidity 10 ~ 95% (No condensation)  
Air pressure 700 ~ 1060 hPa
- **Transportation / Storage environment** : Temperature -20 ~ 70°C  
Humidity 10 ~ 95% (No condensation)  
Air pressure 700 ~ 1060 hPa

Equipment is not suitable for use in environments with, flammable anesthetic gases, oxygen or nitrous oxide.

## ● Dimensions

\*Values are the standard values. (Unit: mm)  
Dimensional tolerance: ±10%



The specification is subject to change without notice.

# Maintenance and Inspection

## Guide for daily maintenance and inspection (Maintenance and inspection by user)

- Management of maintenance and inspection of medical equipment should be implemented by the user (medical institution). In case the user does not implement such management, it is permitted that such management is outsourced to a qualified entity such as a medical equipment repair company.
- For safe use of this product, it is necessary that inspection should be conducted in the specified frequency on the items described below.

| No. | Item                                | Frequency    | Inspection Method and diagnosis   | Influence if inspection is not conducted  | Maintenance required in case of nonconformity   |
|-----|-------------------------------------|--------------|---|---|---|
| 1   | Appearance of lens cover            | Before start | Check deformation, scratches by eyes.   | Deterioration of optical performance  | It may need replace the lens cover. Please contact your dealer or our office.   |
| 2   | Touchless sensor                    | Before start | Confirm the light turns on, off and composite mode switching normally. It may not dirt of the sensor surface.                                       | It may cause the difficulty at dental practice if the touchless sensor doesn't work.                          | The sensor surface may be dirty. Clean it with a soft cloth. If the sensor malfunctions after cleaning, please contact your dealer or our office. |
| 3   | Intensity switch                    | Before start | Change intensity.   | It may cause the difficulty at dental practice.   | Turn off the light. Contact your dealer or our office.  |
| 4   | Functionality of balance arm        | Before start | Swing the balance arm up/down and right/left. Make sure the balance arm stops and holds its position.   | Light head doesn't stay at the desired position.  | Contact your dealer or our office.  |
| 5   | Yoke joint cover                    | Before start | Confirm the yoke joint cover. It's not come out from balance arm. Make sure the yoke cover is securely fastened to the balance arm with two screws. | It may result in injury such as pinching a finger in a joint area if the yoke cover is not attached securely. | If unable to securely attach the yoke cover. Contact your dealer or our office.   |
| 6   | Vertical rotation of the light head | Before start | Rotate the light head up/down. Make sure the light head stops and holds its position.   | Light head doesn't stay at the desired position.  | If the light malfunctions, Contact your dealer.   |
| 7   | Light head angle                    | Before start | Confirms the light head is vertically aligned.  | Light head doesn't stay at the desired position.  | Adjust the angle of the light head.   |
| 8   | Light head rotation                 | Before start | Rotate the light head right/left. Make sure the light rotate 160° to each direction.  | Light head rotates freely. This may cause the snapping of a wire.   | Contact your dealer or our office.  |
| 9   | Moving Parts                        | Before start | Make sure that no abnormal noise occurs when the product is operated.   | Light may not function right.   | Turn off the light. Contact your dealer or our office.  |
| 10  | If not used for a long time         | Before start | If the light has not been used for a long time, make sure the light functions correctly and safely.   | It may cause the difficulty at dental practice.   | If the light malfunctions, Contact your dealer.   |
| 11  | Care exterior                       | Before start | Chemical and dirt on the product exterior must be cleaned.  | Discoloration and deterioration to the exterior, and corrosion and components may arise.                      | Executes wiping in accordance with "Cleaning Instructions"  |

# Maintenance and Inspection

## Guide for Periodical Check-up

- Some parts and components of the products are degraded or deteriorated depending on the frequency of use. Annual check-up and maintenance, as well as replacement of consumable parts, are required.
- The required parts (including consumable parts) are listed below. It may be different from the following list depending on the option of the unit.
- For check-up and repair, call a technician of our authorized dealer.

### Parts and components that require periodical check-up

| No. | Parts Description           | Standard Lifetime |
|-----|-----------------------------|-------------------|
| 1   | Moving part                 | 7 years           |
| 2   | Illuminance adjustment part | 7 years           |
| 3   | Arm part spring             | 7 years           |
| 4   | Switches                    | 5 years           |
| 5   | Boards                      | 5 years           |
| 6   | Electric wiring part        | 4 years           |

### Consumable parts

| No. | Parts Description |
|-----|-------------------|
| 1   | Lens cover        |



## WARNING

Execute the maintenance in accordance with this instruction manual and operating manual attached to each individual equipment ( Dental chair, Dental unit, etc..) .

Failure to maintain this product may lead to physical injury or property damage.

## Electromagnetic Compatibility (EMC)

This product conforms to EMC Standard EN60601-1-2:2015 combined with the dental unit.  
Refer to the operating manual attached to the dental unit for EMC information.

## Declaration of Conformity

We hereby declare that the product listed below complies with the essential requirements of the MDR(EU)2017/745 and RoHS Directive: 2011/65/EU based on category 8 of Annex I.

Product : DENTAL LIGHT (CLASS I)

Model : 300LED DENTAL LIGHT TYPE 320M

" CLASS I " has been defined by the rule 13 of MDR Annex VIII.

The product has been designed and manufactured in accordance with the European standards as the listed in the Declaration of Conformity.

## DEVICES CONNECTABLE TO THE PRODUCT

Use this product in combination with the unit marked with a circle.

|                     | Devices connectable |
|---------------------|---------------------|
| TYPE                | CREDIA G1           |
| 300LED DENTAL LIGHT | ○                   |



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