

# OPERATION MANUAL



## HALLEY series

Technology makes the Halley more brilliant

A001/A002/A003/A004/A005/A006/A007/A008/A009/A010/A011/A012/A013/A014/A015/A016/A017/  
A018/A019/A020/A021/A022/A023/A024/A025/A026/A027/A028/A029/A030/A031/A032/A033/A034/  
A035/A036/A037/A038/A039



# 1. Introduction User and Intended Use

User : Qualified Professionals

Intend Use : Dental Treatment

Class	Degree of risk
 <b>Warning</b>	Hazard that could result in serious injury or damage to the device if the safety instructions are not correctly followed
 <b>Caution</b>	Hazard that could result in light or moderate injury or damage to the device if the safety instructions are not correctly followed

Contraindications: None known.

## CAUTION

- Please lubricate the turbine handpiece prior to initial use. Sterilize the handpiece and the nozzle cleaner.
- When operating the handpiece, always consider the safety of the patient.
- When using the handpiece, protect surrounding patient tissue at all times.
- After extended use the handpiece may become noisy. It may cause accidents or impairment of operator's hearing.  
In such a case, replace its turbine with a new one manufactured by MicroP.

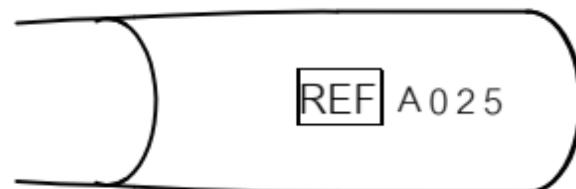
## WARNING

- Always inspect for bent or damaged burs before each use. A bent bur may whip severely and could be propelled with great force causing injury. Do NOT use excessive force on any bur or blade.
- DO NOT attempt to straighten a bent bur.
- Before each use, be sure that burs are completely seated and locked in the instrument. If the instrument is activated without the bur completely seated and locked, the bur may be thrown from the instrument with great force.
- Only use burs and cutters of reputable manufacturer with a shaft diameter of 1.59~1.60mm, total length of max.26mm(1.02") and a head diameter of up to 2mm(.0454"). Burs which deviate from the stated measurements must not be used.

- Pressing the push-button while handpiece bur is on rotation could result in OVERHEATING of the handpiece head.
- Must be caution to keep cheek tissue AWAY from the push-button of the handpiece during using. Contact with cheek tissue may cause the push-button to depress and injury to the patient may occur.
- MicroP turbine should not be rebuilt. Replacing bearings only could result in unexpected failure and patient injury due to different wear factors or new v.s. old components.
- Do not extend burs outward from handpiece head. Burs must be inserted all the way into chuck for proper bur retention. Extended burs could result in personal injury due to bur ejection, bent burs or inadequate cooling.
- Reuse restriction : 250 times
- Field repair is not available except as recommended by MicroP in this operation manual.

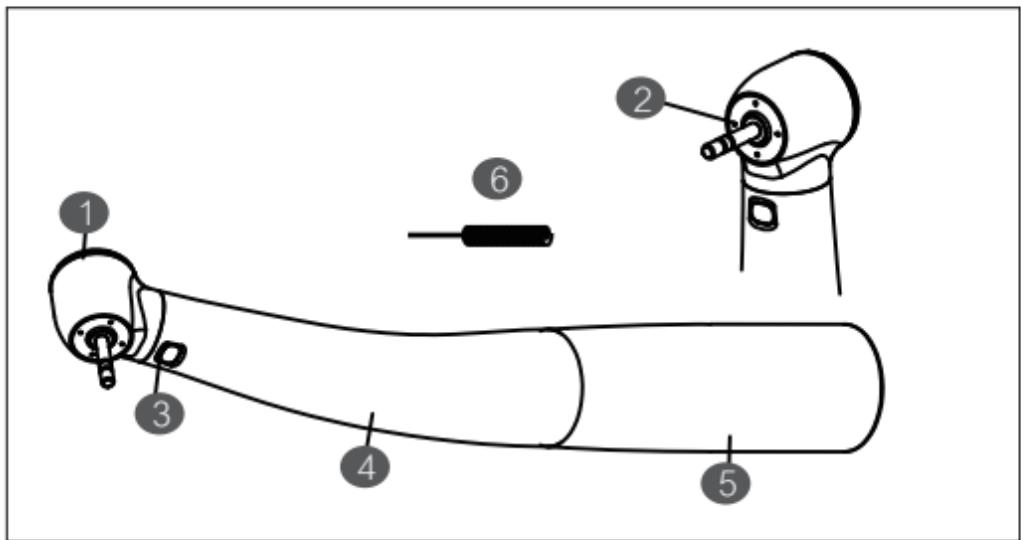
## 1.1 Product Description

- The reference number can be found on the sleeve of the handpiece.



B2/M4/KaVo/NSK-QDJ/Sirona with/without light

- ① Push button
- ② Spray ports
- ③ Light eye\*
- ④ Grip profile
- ⑤ Sleeve
- ⑥ Cleaning wire

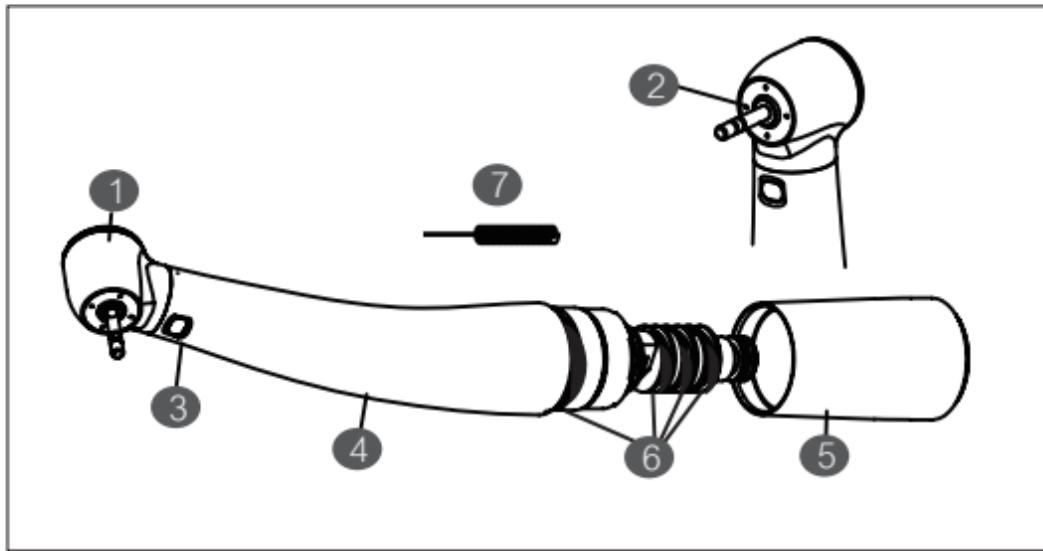


Handpiece Reference Number :

A001/A002/A003/A004/A005/A006/A013/A014/A015/A016/A017/A018/A019/A020/A021/A022/A023/A024/A031/A032/A033/A034/  
A035/A036/A037/A038/A039

## NSK-PTL-CL / NSK-FM-CL with/without light

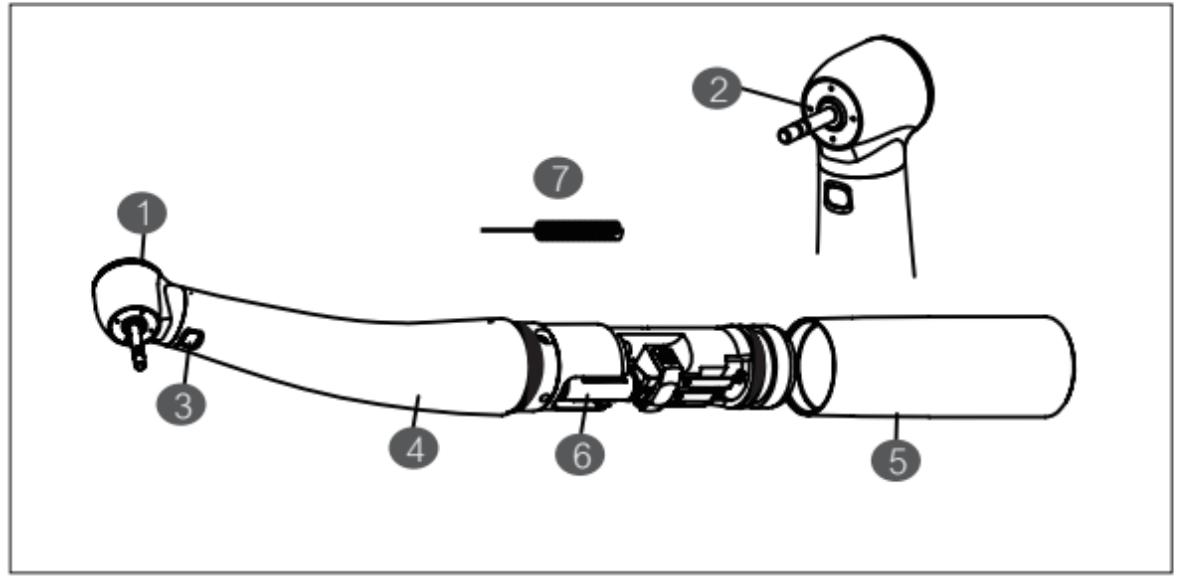
- ① Push button
- ② Spray ports
- ③ Light eye\*
- ④ Grip profile
- ⑤ Sleeve
- ⑥ O-rings
- ⑦ Cleaning wire



**Handpiece Reference Number :**  
A007/A008/A009/A010/A011/A012

## W&H with/without light

- ① Push button
- ② Spray ports
- ③ Light eye\*
- ④ Grip profile
- ⑤ Sleeve
- ⑥ O-rings
- ⑦ Cleaning wire

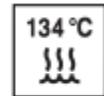


**Handpiece Reference Number :**  
A025/A026/A027/A028/A029/A030

## 1.2 Symbols



Manufacturer



Sterilizable in a steam sterilizer  
(autoclave) at the temperature specified



Authorized Representative



Reference number



Date of manufacture



Serial Number



Do not dispose of with domestic waste



Washer-disinfector for thermal disinfection

## 1.3. Accessories

### 1.3.1 Spare Parts

#### HEAD CAP

REF.	HANDPIECE REF.
AHHC006	A001/A002/A004/A005/A007/A008/A010/A011/A013/A014/A016/A017/A019/A020/A022/A023/A025/A026/A028/A029/A031/A032/A034/A035/A037/A038
AHHC007	A003/A006/A009/A012/A015/A018/A021/A024/A027/A030/A033

#### WRENCH TOOL

REF.	HANDPIECE REF.
AHHZZ003	A001/A002/A004/A005/A007/A008/A010/A011/A013/A014/A016/A017/A019/A020/A022/A023/A025/A026/A028/A029/A031/A032
AHHZZ004	A003/A006/A009/A012/A015/A018/A021/A024/A027/A030/A033

## REPLACEMENT TURBINE

REF.	Handpiece REF.
AT500	A007/A010/A013/A016/A019/A022/A025/A028/A034/A037
AT501	A008/A011/A014/A017/A020/A023/A026/A029/A035/A038
AT502	A009/A012/A015/A018/A021/A024/A027/A030/A036/A039
AT503	A001/A004/A031
AT504	A002/A005/A032
AT505	A003/A006/A033

## LUBRICATION NOZZLE (SPINDLE)

REF.	Handpiece REF.
AHLN001	A001 - A033

## LUBRICATION NOZZLE

REF.	Handpiece REF.
AHLN002	A001/A002/A003/A031/A032/A033
AHLN003	A004/A005/A006
AHLN004	A007/A008/A009/A010/A011/A012
AHLN005	A013/A014/A015/A016/A017/A018
AHLN006	A019/A020/A021/A022/A023/A024
AHLN007	A025/A026/A027/A028/A029/A030

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## 1.3.2. Replacing Parts

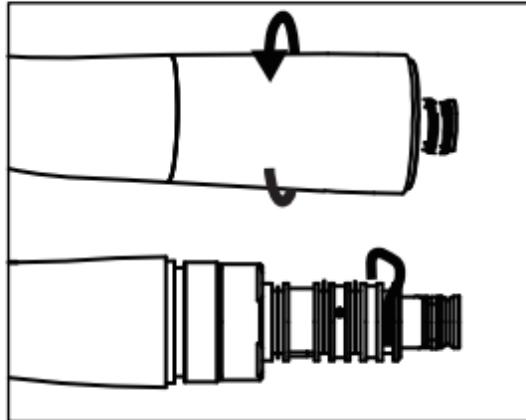
### Replacing the O-rings

Replace the O-rings if water is present in the exhaust air line.

This is an indication of possible water leakage within the coupling.

ALWAYS change the complete set of O-rings.

- 1) Loosen and remove the taper ring at the rear of the handpiece.
- 2) Gently remove each O-ring by hand.
- 3) Insert the complete set of new O-rings in the correct grooves.
- 4) Firmly tighten the taper ring.



#### ⚠ CAUTION

- Do not force the new replacement O-rings with excessive pressure.
- When inserting new O-rigs, make sure they are inserted in the correct grooves.
- Make certain that the taper rings are firmly tightened. If the taper ring is loose,water and air leakage could occur.

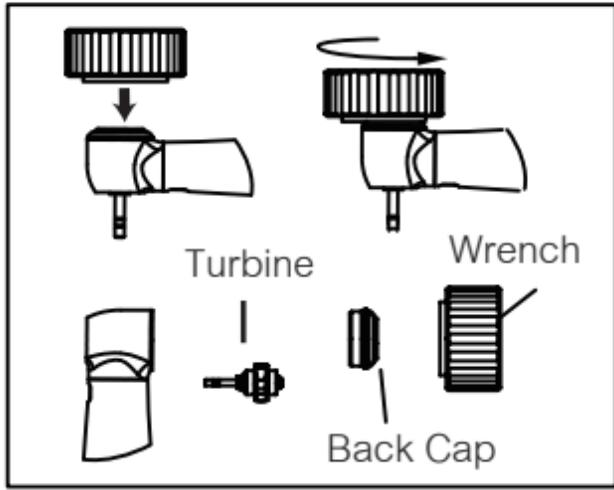
## Replacing the Turbine

### Removing the Turbine

- 1) Mount a dummy bur in the chuck.
- 2) Insert the wrench on the Back Cap and turn the wrench counter-clockwise until cap is removed.
- 3) Push up the dummy bur, and the turbine is easily removed from the head.
- 4) Clean the head interior.

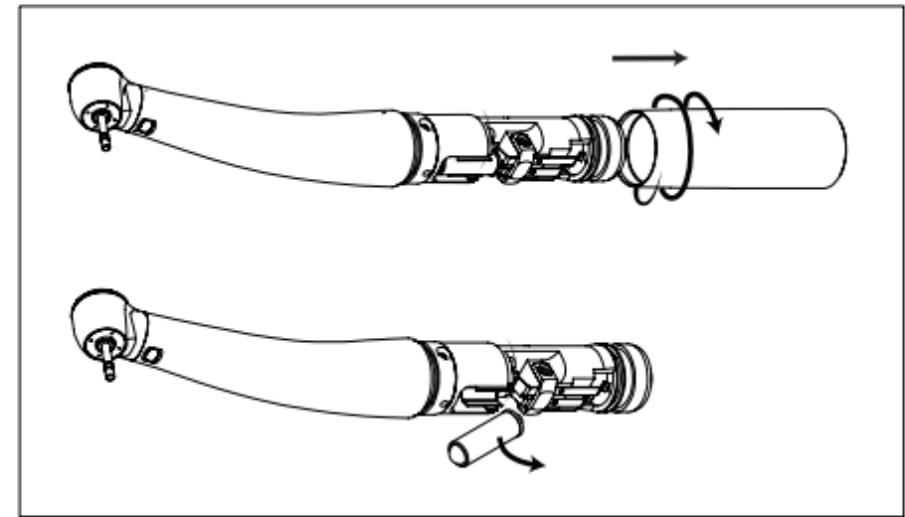
### Inserting the new Turbine

- 1) Insert the new turbine, with its pin aligned in the slot of the handpiece head, straight into the handpiece.
- 2) Hand-tighten the Back Cap until it sets in place.



## Replacing the bulb

- 1) Unscrew sleeve.
  - 2) Remove the defective bulb with thumb and forefinger or tweezers.
  - 3) Push bulb carefully into the lamp holder.
  - 4) Screw sleeve lightly again.
- (For A025/A026/A027/A028/A029/A030 only)



## 1.4 Specifications

Model	M
Rotation Speed	330,000~390,000 min <sup>-1</sup> (at the recommended drive air pressure.)
Bur Type	ISO 1797-1 Ø1.59 ~ 1.60 mm Standard Bur
Max. Bur Length	21 mm
Max. Working Part Diameter	Ø2 mm
Recommended Drive Air Pressure	0.28 MPa
Operating Drive Air Pressure Range	0.25~0.3 MPa
Max. Air Consumption	< 66 NL/min
Water Pressure	0.08~0.20 MPa
Chip Air Pressure	0.10~0.20 MPa
Fiber Optic	Glass Rod
Use Environment	Temperature: 10~40°C (No Condensation), Humidity: 30~75%
Transportation and Store Environment	Temperature: -10~50°C, Humidity: 10~85%RH, Atmospheric Pressure: 500~1060hPa
Water Consumption	> 50ml

Model	S
Rotation Speed	330,000~390,000 min <sup>-1</sup> (at the recommended drive air pressure.)
Bur Type	ISO 1797-1 Ø1.59 ~ 1.60 mm Standard Bur
Max. Bur Length	21 mm
Max. Working Part Diameter	Ø2 mm
Recommended Drive Air Pressure	0.28 MPa
Operating Drive Air Pressure Range	0.25~0.3 MPa
Max. Air Consumption	< 66 NL/min
Water Pressure	0.08~0.20 MPa
Chip Air Pressure	0.10~0.20 MPa
Fiber Optic	Glass Rod
Use Environment	Temperature: 10~40°C (No Condensation), Humidity: 30~75%
Water Consumption	Temperature: -10~50°C, Humidity: 10~85%RH, Atmospheric Pressure: 500~1060hPa
Transportation and Store Environment	> 50ml

Model	T
Rotation Speed	310,000~370,000 min <sup>-1</sup> (at the recommended drive air pressure.)
Bur Type	ISO 1797-1 Ø1.59 ~ 1.60 mm Standard Bur
Max. Bur Length	21 mm
Max. Working Part Diameter	Ø2 mm
Recommended Drive Air Pressure	0.28 MPa
Operating Drive Air Pressure Range	0.25~0.3 MPa
Max. Air Consumption	< 66 NL/min
Water Pressure	0.08~0.20 MPa
Chip Air Pressure	0.10~0.20 MPa
Fiber Optic	Glass Rod
Use Environment	Temperature: 10~40°C (No Condensation), Humidity: 30~75%
Water Consumption	Temperature: -10~50°C, Humidity: 10~85%RH, Atmospheric Pressure: 500~1060hPa
Transportation and Store Environment	> 50ml

## 2.Operation

### 2.1 Setting Air Pressure

Set the drive air pressure at 0.28MPa (40 psi) at the arrow point.

#### ⚠ WARNING

- DO NOT exceed the recommended air pressure to prevent premature ball bearing failure.

## 2.2 Connection/Disconnection of the coupling

For REF : A007/A008/A009/A010/A011/A012/A025/A026/A027/A028/A029/A030

### CONNECTION

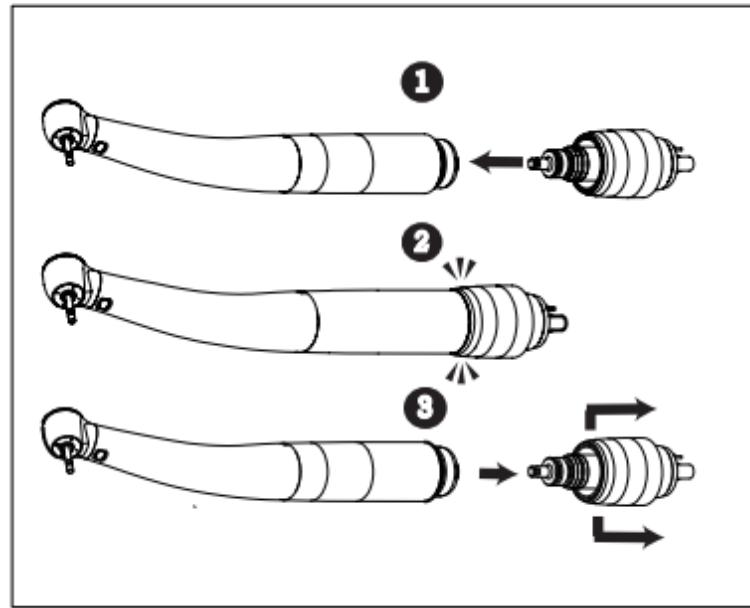
- 1) Insert the handpiece into the Coupling.
- 2) Make sure the handpiece is firmly connected to the Coupling.

### DISCONNECTION

- 3) Slide back the connector ring, and the handpiece pops out.  
(A007-A009 NSK-PTL, A010-A012 NSK-FM, A025-A030 W&H roto quick)

#### ⚠ CAUTION

- DO NOT slide back the connector ring while the handpiece is under air pressure.



For REF : A004/A005/A006 for NSK QDJ

### CONNECTION

- 1) Slide back the connector ring and insert the handpiece into the Coupling.
- 2) Release the connector ring. Make sure the handpiece is firmly connected to the Coupling.

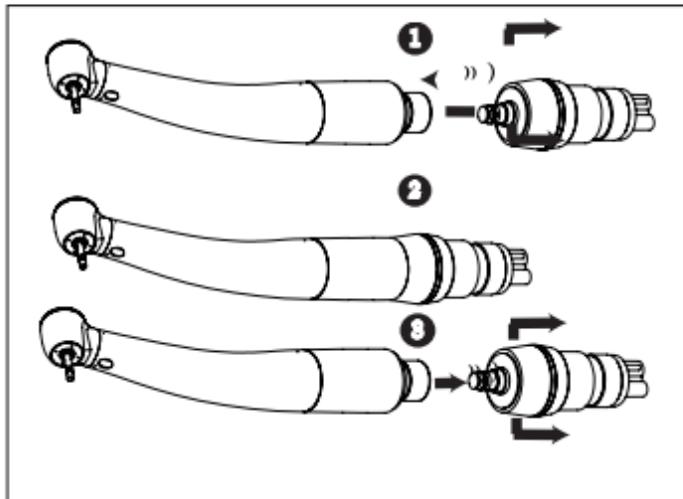
### DISCONNECTION

- 3) Slide back the connector ring, and the handpiece pops out.

(A004/A005/A006-NSK QDJ)

#### ⚠ CAUTION

- DO NOT slide back the connector ring while the handpiece is under air pressure.



For REF : A013/A014/A015/A016/A017/A018/A019/A020/A021/A022/A023/A024/A034/  
A035/A036/A037/A038/A039

## CONNECTION

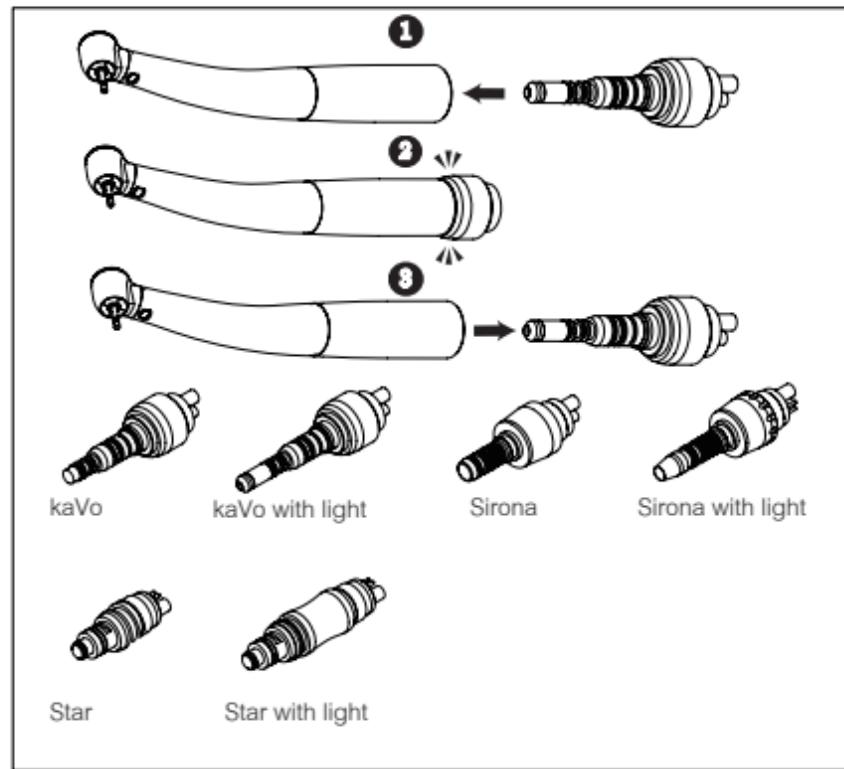
- 1) Insert the handpiece into the Coupling.
- 2) Make sure the handpiece is firmly connected to the Coupling.

## DISCONNECTION

- 3) Remove the Coupling by exerting axial direction.  
(A013-A018 KaVo Mutiflex, A019-A024 Sirona)

### ⚠ CAUTION

- DO NOT slide back the connector ring while the handpiece is under air pressure.



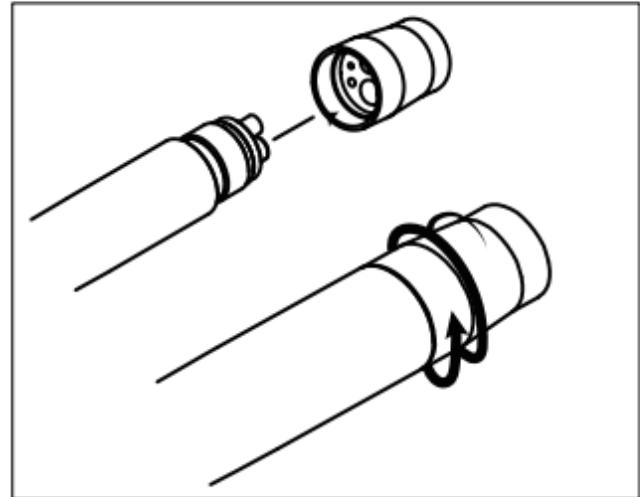
For REF : A001/A002/A003/A031/A032/A033

### CONNECTION

- 1) Insert the handpiece with BC/RM connection into the apertures of the turbine hose.
- 2) Firmly screw the union nut on.
- 3) Check for leaks at the handpiece

### DISCONNECTION

- 4) Unscrew the union nut and remove the handpiece from the turbine hose.  
(A001/A002/A003-Fixed 4 holes, A031/A032/A033-Fixed 2 holes)



## 2.3 Insertion/Removal of the Bur

To insert the rotary instrument

STEP 1 Insert the rotary instrument.

STEP 2 Press the Push Button.

STEP 3 Insert the rotary instrument fully until it stops. Release the Push Button.

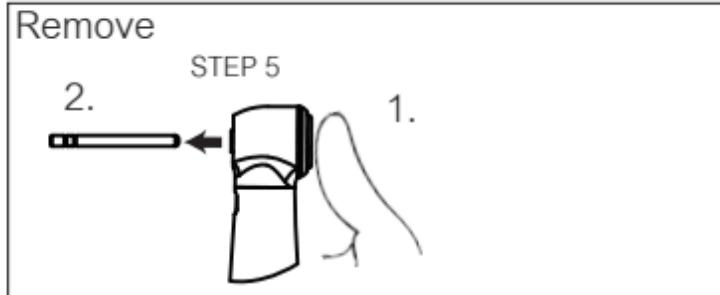
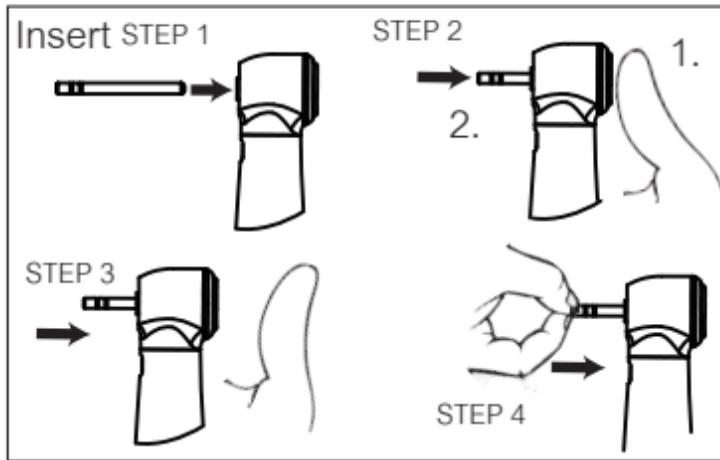
STEP 4 Ensure that the rotary instrument is secure by gently push the rotary instrument.

To remove the rotary instrument

STEP 5 Press the Push Button and remove the rotary instrument.

### ⚠ CAUTION

- Always check that the bur is fully inserted.
- Remove the bur only after the handpiece has completely stopped rotating.
- Always keep the bur shank clean.
- Do not exceed the bur speed recommended by the bur manufacturer.  
(Ø1.59 - Ø1.60 mm)
- Do not exceed the maximum bur length recommended by the handpiece manufacturer.

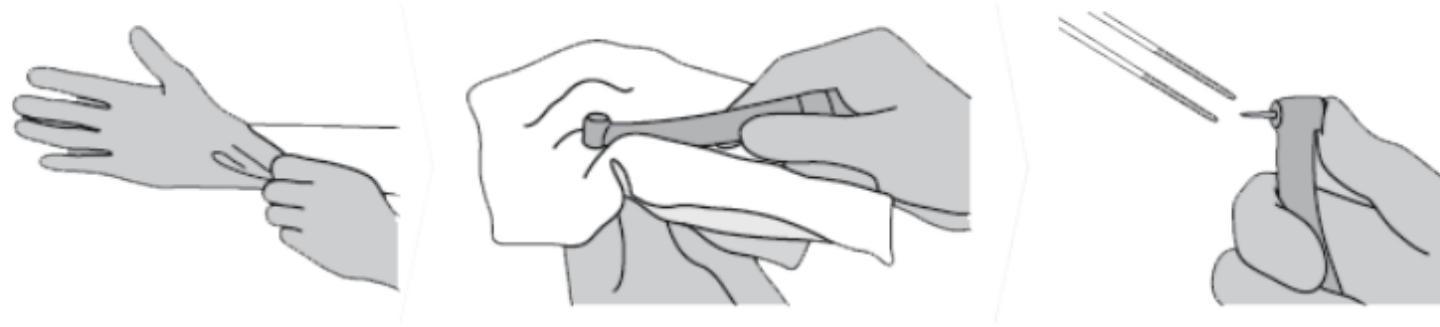


## 2.4 Hygienic Reprocessing of Dental Handpieces

### 2.4.1 Preparation

#### DANGER

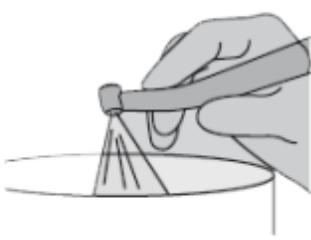
The transmission instrument should be cleaned, disinfected and lubricated immediately after treatment. If the instrument is not properly maintained, it may go overheating and ruin functions of the device.



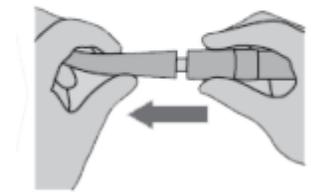
1. For your safety:  
Please always wear  
puncture-resistant and  
protective gloves, mouth  
guard and glasses to  
minimize the risk of infection.

2. Instruments should immediately connect with approved disinfectant wipe (do not spray) externally until all visible dirt are removed.

3. Drill out of the remove clamping system and drill insert in after disinfection.



4. Leave on instrument after treatment of each patients for at least 20 seconds or re-run after water wash.

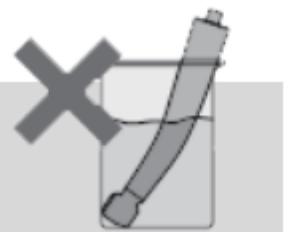


5. Instruments are taken off from the engine or turbines are separated from the clutch  
(Install turbine disconnect from the hose)

SAFE TRANSPORT - By means of closed instrument in the processing of transportation to other places

**⚠ CAUTION**

- DO Never insert handpieces / turbines in disinfectant solutions or clean them in ultrasonic devices!



## 2.4.2 Cleaning

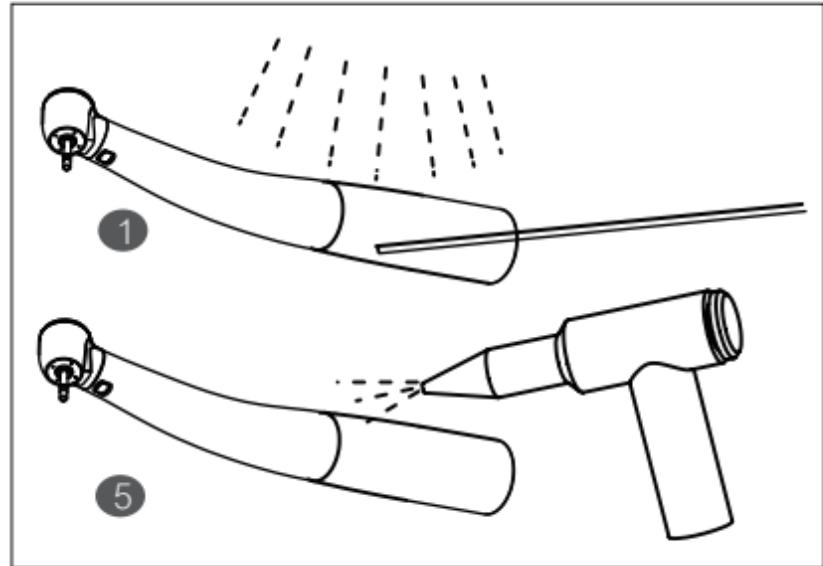
Disinfect and clean the handpiece after the treatment of each patient.

After each patient, maintain the product as follows. Lack of maintenance could cause premature failure or overheating of the handpiece.

### Manual cleaning

- 1) Rinse under demineralized water(<38°C)with the aid of brush.
- 2) Remove any liquid residues, debris from clean head holes with cleaning wire,brush.
- 3) Rotate the handpiece and immerse half of the handpiece head in the cup of water.
- 4) Rotate then stop intermittently the handpiece 3 times for 2 to 3 seconds each time.
- 5) Wipe the handpiece dry (use absorbent cloth or blow dry with compressed air).

\* If the dirt could not be removed from the hole, clean it by brush.



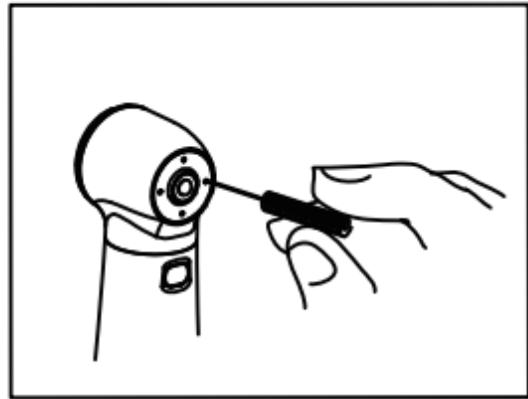
## Cleaning handpiece surface

- 1) Remove debris from the product. DO NOT use a wire brush.
- 2) Wipe clean with alcohol-immersed cotton swab or cloth.

 This icon denotes that the product can be washed via Thermo Disinfector.

## Cleaning spray ports

- 1) When spray ports are clogged, or spray does not exit evenly from the ports, clean the ports.



### ⚠ CAUTION

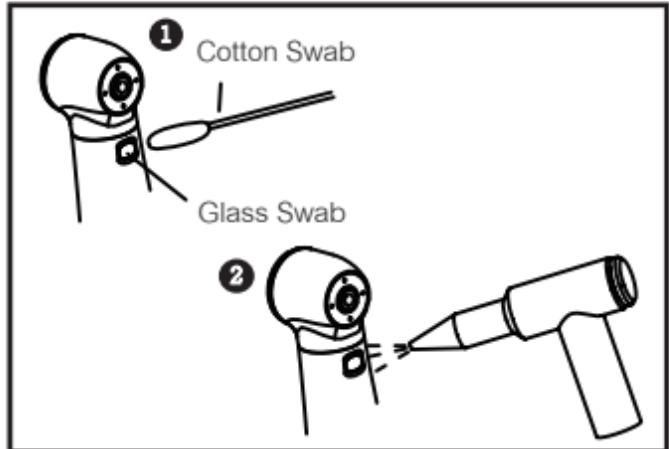
- DO NOT forcibly insert the wire into the port. Resultant port damage could cause the spray to be directed away from the bur, and the colling efficiency reduces.
- DO NOT blow air into the Clean Head Hole.

## Cleaning (Optic)

- 1) Wipe clean the Glass Rod tip with an alcohol-immersed cotton swab. Remove all debris and oil.
- 2) Remove any liquid residues (use absorbent cloth or blow dry with compressed air)

### ⚠ CAUTION

- DO NOT use a sharp tool to clean the Glass Rod. It could damage the glass and reduce the light transmission.



### 2.4.3 Lubrication & Maintenance - Manual

Disinfect and clean the handpiece after the treatment of each patient.

After each patient maintain the product as follows. Lack of maintenance could cause premature failure or overheating of the handpiece.

Supply oil spray or lubrication oil after each use and before autoclaving.

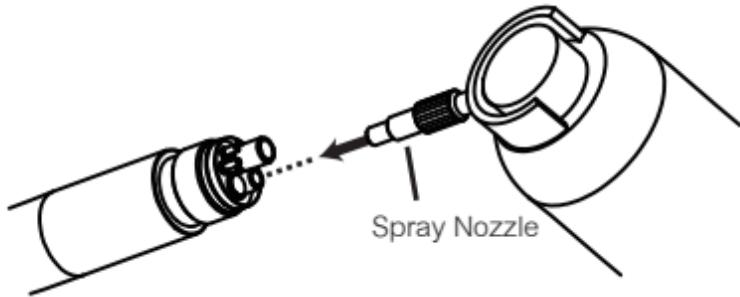
- 1) Remove the bur from the handpiece
- 2) Insert the Spray Nozzle into the spray port nozzle on the can.
- 3) Insert the Spray Nozzle into the rear of the handpiece. Hold the handpiece and spray for approximately 2-3 seconds.  
Apply lubricant until it expels from the handpeice head for at least 2 seconds.

#### ⚠ CAUTION

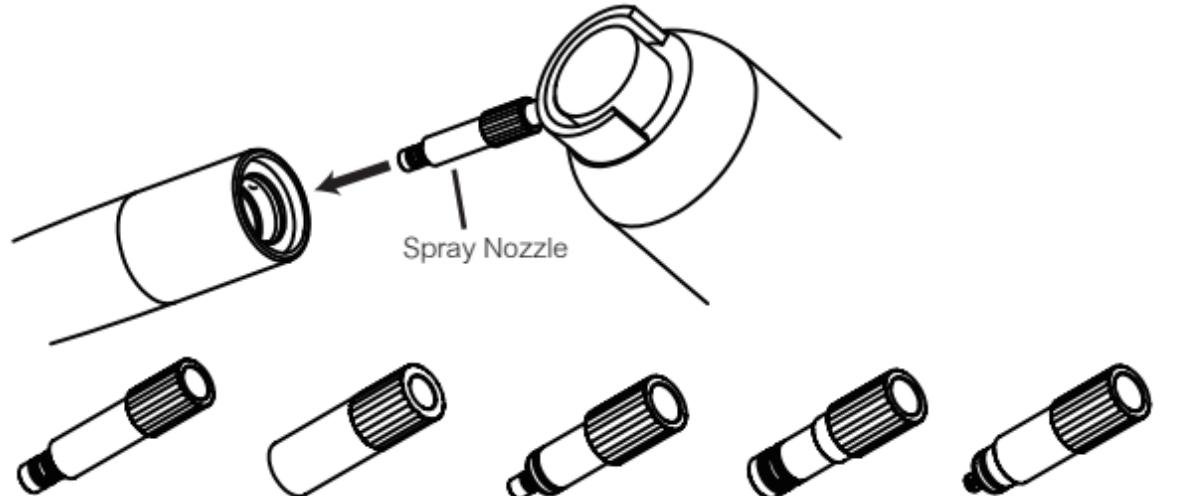
- Please follow the step to sterilize when first time use and keep it clean after sterilization.
- DO NOT use any other ways not recommended by manufacturer to sterilize the handpiece.
- Immediately after use, the product should be cleaned, lubricated and sterilized. If blood remain on the external or internal surfaces it can become clotted and cause rust.



## Spray Nozzle



A001/A002/A003  
A031/A032/A033



A013/A014/A015/  
A016/A017/A018    A007/A008/A009/  
A010/A011/A012    A004/A005/A006  
A019/A020/A021/  
A022/A023/A024    A025/A026/A027/  
A028/A029/A030

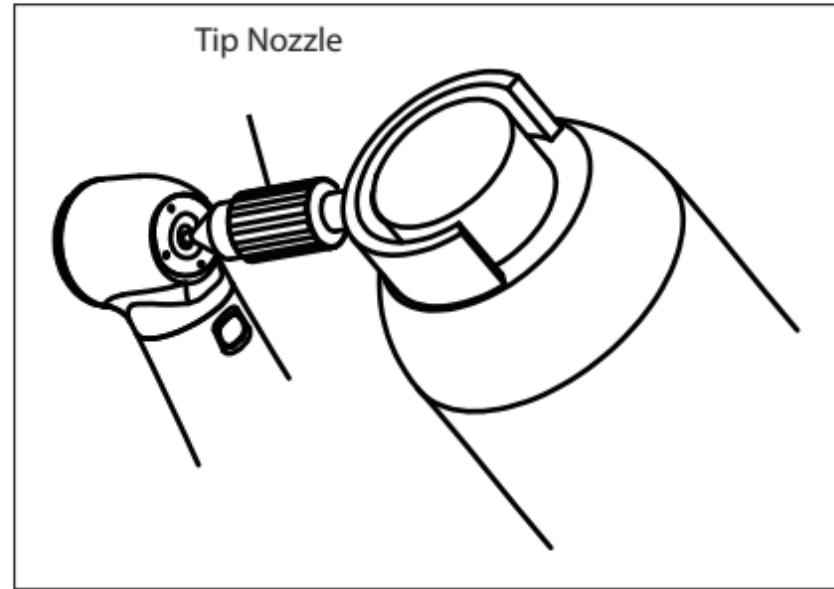
## Chuck Lubrication

Clean the Push Button chuck once a week.

- 1) Mount the Tip Nozzle into the spray can port.
- 2) Lubricate the chuck directly through the bur insertion hole.

### ⚠ CAUTION

- If the chuck is not regularly cleaned, the chuck grip may be weakened and the bur may be accidentally released while in operation.
- Always hold the Spray Can upright.
- To prevent the handpiece from slopping from the Nozzle, always hold the handpiece securely to the Nozzle.



## Lubrication & Maintenance - Machine

- a) By means of machine cleaning, disinfecting and device caring are governed according to the original machine manual.
- b) By means of cleaning and disinfection according to DIN, EN and ISO with pH-value of max.10.5 are operated.  
It is equipped with appropriate adapters. Evidence of process suitability must be obtained from the manufacturer.

Please note: the mechanical cleaning in thermal can be carried out only at instruments that are marked with the following thermal disinfection symbol - 

### CAUTION

- Handpiece and turbines should be obtained immediately after the end of the treatment to avoid contact corrosion. Care must be taken when all is removed from the processing with suitable activities from the instrument (spray air, spray water, transmission channels), otherwise, it may lead to corrosion in the instrument.
- Supplying oil spray or lubrication oil after each use and before autoclaving is necessary.
- If the machines will not be well maintained regularly, the drill may accidentally come loose during operation.

## Machine maintenance

Manual with oil spray or oil machine like the following pictures.

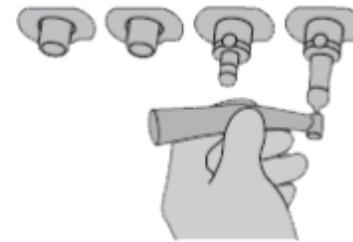
When using the oil machine, please observe the following note:

Manually maintain high-speed handpieces with oil spray immediately after use.



Manual

or



Machine

### ⚠ CAUTION

- Measures to maintain / lubricate the transfer instrument must be made AFTER each cleaning and disinfecting process and before each sterilization.
- If the collet is not regularly inflated, wear on the chuck holder will occur, causing the drill to accidentally loosen during operation.

#### 2.4.4 Packaging

The transfer instrument must be individually sealed in a sterilization bag.

#### 2.4.5 Sterilization

Sterilize the handpiece by autoclave steam generator is recommended. Remove the bur and sterilize as noted below.

- 1) Clean and lubricate the handpiece as previously described. (Refer to 2.4.2 Cleaning, 2.4.3 Lubrication)
- 2) Insert the handpiece into an autoclave pouch and seal the pouch.
- 3) Autoclave at 121°C for 30 minutes, or 132°C for 15 minutes, or 134°C for 3 minutes.

##### **⚠ CAUTION**

- Please follow the step to sterilize when first time use and keep it clean after sterilization.
- DO NOT use any other ways not recommended by manufacturer to sterilize handpiece.
- Immediately after use, the product should be cleaned, lubricated and sterilized. If blood remains on the external or internal surfaces it can become clotted and cause rust.

We recommends B-class autoclaves for sterilization. Sterilization has generally been classified as critical B by manufacturers of handpieces and turbine as well as packed accessories. Loading pattern of the manufacturer and under the following sterilization parameters. Autoclave B-Class: At least 3 minutes at 134 ° C Alternatively: At least 30 minutes at 121 ° C

Please note: Appropriate testing procedures should be used to demonstrate effective sterilization.

2. Handpiece should to be taken out of the autoclave immediately after the end of the sterilization cycle to avoid contact corrosion
3. Sterilization should only be performed on the instruments marked with the following sterilization symbol:

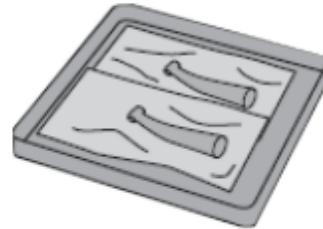


#### ⚠ CAUTION

- If the Sterilizer temperature may exceed 134°C during the dry cycle then skip the dry cycle.
- Heating element may be located at the bottom of the chamber, where the temperature locally may exceed the set value.  
Place the handpiece on the center or the upper tray.
- Do not autoclave the handpiece with other instruments even when it is in a pouch. This is to avoid discoloration and damage to the handpeice from chemical residue on other instruments.
- Do not heat or cool too quickly.
- Please store at dry, dark, cool place after each sterilization.

## 2.4.6 Storage

The storage of the transfer instruments has to be in packaged state and dry.



## 2.4.7 Periodical Maintenance Checks

Please perform periodical maintenance checks every month, referring to the check sheet below. If any abnormalities are found, contact your Authorized Dealer.

Points to check	Details
Head Cap is loose	Check and make sure the Head Cap is firmly tightened
Rotation	Rotate the handpiece and check for abnormalities such as abnormal rotation, vibration, noise and overheating

### 3.Warranty

- 1) We warrant the handpiece against poor manufacturing, poor workmanship and defects in materials. We reserve the right to analyze and determine the cause of any problem.
- 2) Warranty is voided should the handpiece be not used correctly.
- 3) Replacement parts and handpiece are available for 10 years beyond discontinuation of the model.



### 4.Disposing product

- 1) Disposing product Recycling: MicroP considers that it has a special duty towards the environment. The turbine handpiece along with its packaging has been designed to be as environmentally friendly as possible.
- 2) Disposal of the turbine handpiece : Follow your country-specific laws, directives, standards and guidelines for the disposal of used electrical devices. Ensure that the parts are not contaminated on disposal.
- 3) Disposal of the packaging material: All packaging materials have been selected according to environmentally compatible and disposal aspects and can be recycled. Please send old packaging materials to the relevant collection and reprocessing system. This way, you will contribute to the recycling of raw materials and the avoidance of waste.

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