

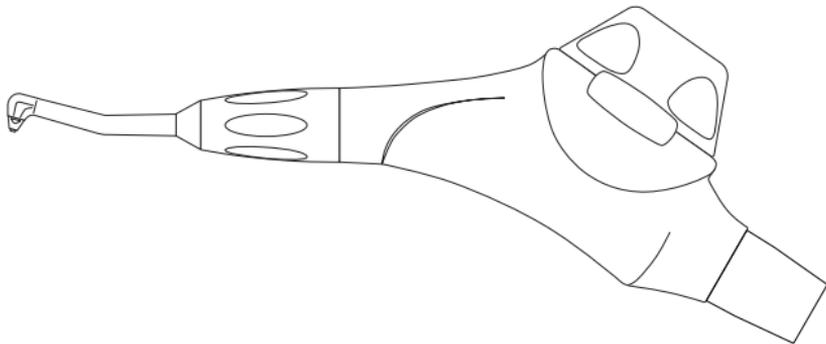
VECTOR

Air Polisher

POLISH PLUS

PPW-K / PPW-W / PPW-S / PPW-B / PPW-N

INSTRUCTION MANUAL



Thank you for purchasing the air polisher "POLISH PLUS".

For optimum performance of your polisher, read this instruction manual carefully and thoroughly before use. Mishandling of this instrument may cause mechanical trouble and accidents during treatment.

Keep this instruction manual for future reference.

Specifications in this manual may be changed for improvement and modification without prior notice.

* POLISH PLUS is indicated as "polisher" in this instruction manual.

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CONTENTS

1. PREFACE	1
2. CAUTIONS FOR USE	2
3. INTENDED USE	4
4. CHARACTERISTICS	4
5. DELIVERY PACKAGE	5
6. PRODUCT COMPONENTS	6
7. HOW TO USE	7
7.1 Before use	7
7.2 Air pressure setting (at first use)	8
7.3 Attaching head	9
7.4 Attaching powder cap	10
7.5 Connecting to dental unit	12
7.6 Water removal in channels (idle run)	14
7.7 Powder filling	15
7.8 Confirming correct operation and water volume	17
7.9 Treatment	18
7.10 Other remarks on use	22
8. MAINTENANCE AND CHECKS	24
8.1 Regular maintenance and checks	24
8.2 Cleaning at troubles in air and powder spray	26
9. CLEANING AND STERILIZATION	28
9.1 Cleaning	28
9.2 Sterilization	28
9.3 Storage	30
10. REPLACEMENT OF CONSUMABLE PARTS, DISPOSAL	31
10.1 Replacement of head	31
10.2 Replacement of head o-ring	31
10.3 Replacement of powder cap	31
10.4 Replacement of powder seal	32
10.5 Disposal	32
11. TROUBLE SHOOTING	33
12. SPECIFICATIONS	35
13. COMPONENT PARTS	36

1. PREFACE

The definitions in this instruction manual of the words preceded by the symbol  are as follows. To avoid dangers, observe the instructions preceded by these words.

: This indicates not specific general attentions, cautions and dangers.

 **CONTRAINDICTION AND RESTRICTION:**

This indicates exemptions from responsibilities such as improper use and excess of design limit.

 **DANGER:** This indicates potential direct dangers that may cause serious injuries, death, property damages such as total loss of the instrument or fire disaster.

 **CAUTION:** This indicates potential indirect dangers that may cause serious injuries, death, property damages such as total loss of the instrument or fire disaster.

 **ATTENTION:** This indicates potential dangers that may cause light to middle injuries, property damages such as partial loss of the instrument or loss of computer data.

The drawings and illustrations in this instruction manual is PPW-K unless otherwise specified.

2. CAUTIONS FOR USE



CONTRAINDICATION AND RESTRICTION

1. Non-eligible patients

- 1) Never use this product on patients
 - on a low salt diet (due to hypernatremia, edema, pregnancy toxemia, etc.),
 - having a serious ulcer in digestive organs,
 - having a renal dysfunction,
 - having cardiac dysfunction,
 - having asthma or chronic pulmonary disease,
 - having electrolyte abnormality due to hypochloric alkalosis.
- 2) Avoid using this product on patients below, other than those stated in above 1):
 - having an intraoral injury or disease,
 - having a hyperemia, inflammation or bleeding in the intraoral cavity,
 - easily get oral mucosa inflammation or bleeding,
 - having allergies,
 - wearing contact lenses.
- 3) Depending on the patient's physical condition, allergy symptoms or stomatitis may occur. In such a case, stop using this product.

2. Usage

- 1) This product must be used only by qualified dental professionals and only for dental treatment.
- 2) Never dismantle or modify this product.
- 3) In case of trouble, do not attempt to repair. Return to dealer for repair.
- 4) In case of deterioration or malfunction, do not use this product.
- 5) Do not use this product when in an unmaintained condition.
- 6) To operate this instrument correctly and safely, keep the instruction manual.
- 7) Use sodium hydrogen carbonate powder for dental prophylaxis only. Other powder (for example, alumina powder) will cause a decrease in cleaning efficiency, powder clogging, or damage to the polisher.



CONTRAINDICATION AND RESTRICTION

- 8) Do not reuse the powder.
- 9) The powder must be filled into the powder cap. Filling into the chamber unit may cause a premature wear of the screw threads and insufficient sealing and powder scattering.
- 10) Never spray into the subgingival, root canal, or extraction socket. It can cause accidental symptoms such as emphysemas.
- 11) Never spray directly into the intraoral soft tissues (gingiva, mucosa). It can cause accidental symptoms such as surface damages.
- 12) This product must not be repaired by the user in case of malfunction. Contact your dealer for repair.

3. INTENDED USE

This product is intended to remove dental plaque, stain, and discoloration from tooth surface etc. by dental professionals during dental treatment.

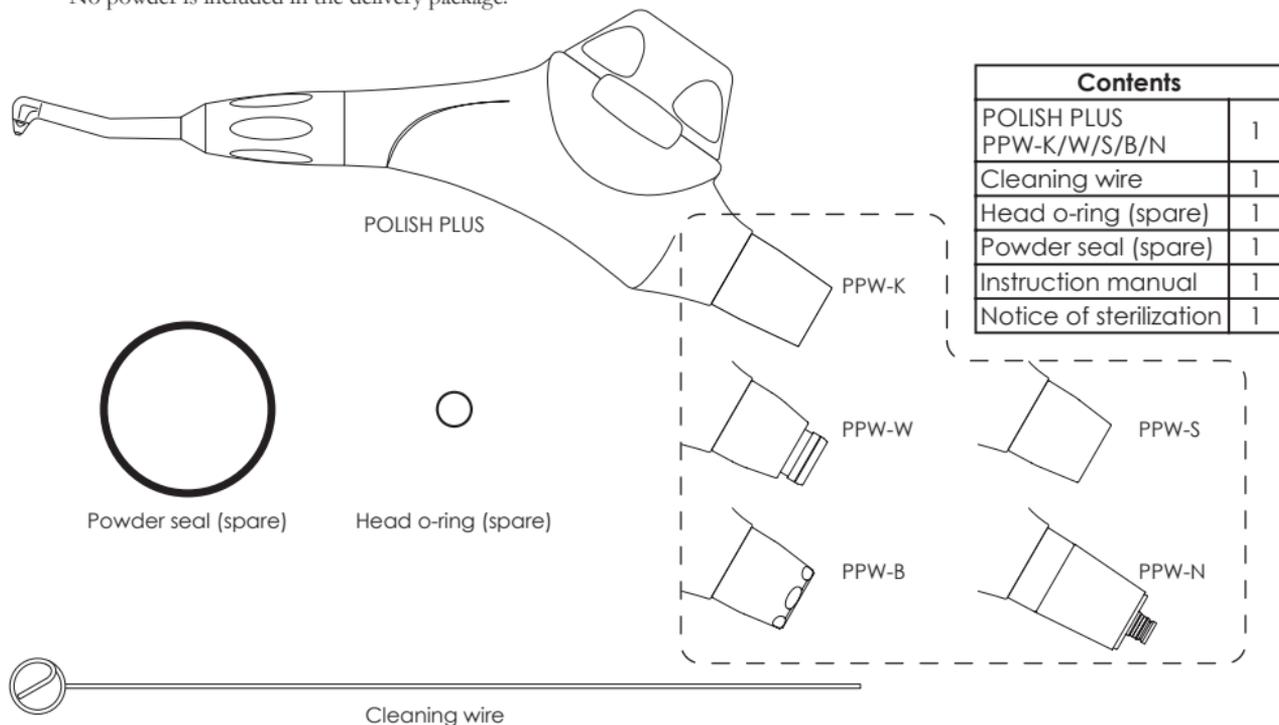
4. CHARACTERISTICS

- 1) The compact handpiece form allows easy movement between dental units and takes up little space for storage.
- 2) The quick-disconnect system permits easy replacement with turbines and immediate use. No need for cumbersome installation and allows easy integration into your treatment system.
- 3) The contra-angled head rotates 360 degrees, allowing excellent access to all areas.
- 4) The detachable head allows easy maintenance in case of powder clogging.
- 5) Driven by compressed air and water from the dental unit, polisher neither effects other medical devices and is not effected by electromagnetic waves.

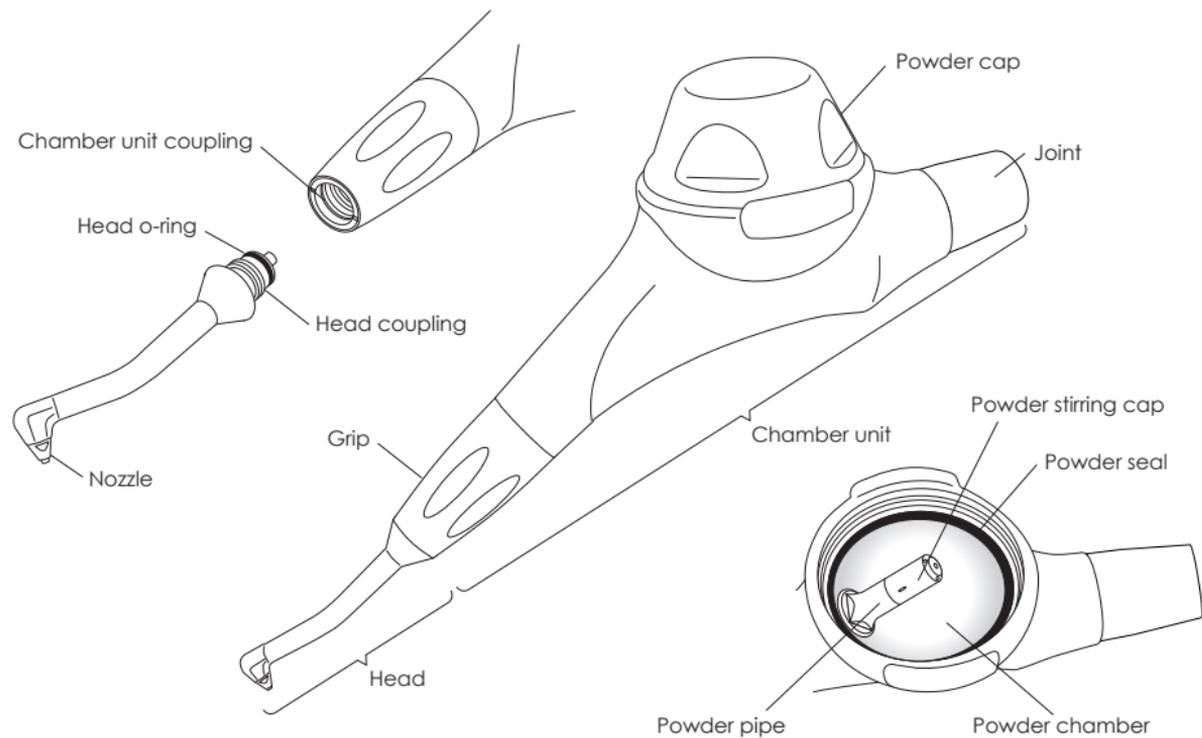
5. DELIVERY PACKAGE

The components and accessories below are included in the delivery kit. When you first open the package, confirm all components are included in the package. If something is missing, contact your dealer immediately.

No powder is included in the delivery package.



6. PRODUCT COMPONENTS



7. HOW TO USE

7.1 Before use

CAUTION

Do not impact this product (dropping, for example). The main body may be damaged.

ATTENTION

- 1) Use this product for the prescribed purpose according to the specified usage only.
- 2) When using other products which are compatible (such as peripheral devices and instruments) to this product, observe instructions for use of such devices or instruments.

1) Opening the package

When unpacking the package first time, confirm all contents in "5. DELIVERY PACKAGE" are included in the package.

2) Confirmation of defect

Confirm polisher has no defect or damage such as cracks.

3) Sterilization (before first use and when a sterilization is required)



Clean with alcohol and sterilize in an autoclave according to instructions in "9. CLEANING AND STERILIZATION".

ATTENTION

- 1) This product is not sterilized in the delivery condition. Clean with alcohol and sterilize in an autoclave before first use. Do not use drying cycle.
- 2) Do not lubricate this product. Lubricant will be mixed into the compressed air and cause powder clogging.

4) Checking your air compressor

To supply polisher with clean and dry air, drain air filter of the compressor in your dental office. Do not supply compressed air containing moisture. For drainage and regular maintenance of your compressor, please refer to your air compressor's instruction manual. Confirm the compressor is maintained according to its instructions for use.

7.2 Air pressure setting (at first use)

1) Preparation of polisher

- If polisher is connected to a turbine hose, disconnect it from the turbine hose.
- Attach the head and powder cap to the chamber unit according to "7.3 Attaching head" and "7.4 Attaching powder cap".

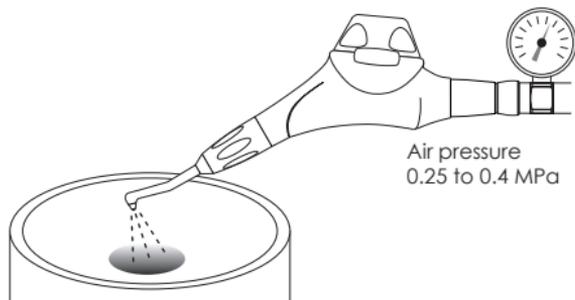
Do not fill the powder yet.

2) Connection

- Connect your coupling (separately sold) to your turbine hose. Confirm secure connection.
- Connect a pressure gauge to your coupling on your turbine hose until you hear a locking sound. Confirm the gauge is firmly attached. (If you don't have a pressure gauge, consult with your dental dealer.)
- Connect polisher to the coupling of the pressure gauge until you hear a locking sound. Confirm the gauge is firmly seated.

3) Air pressure setting

- Turn off the water supply of your dental unit. Direct polisher to your cuspidor and depress your foot control to activate the dental unit.
- Adjust the air pressure of the unit until the gauge shows 0.25 to 0.4 MPa (about 2.6 to 4.0kgf/cm²)
- Detach the pressure gauge and polisher after pressure adjustment.

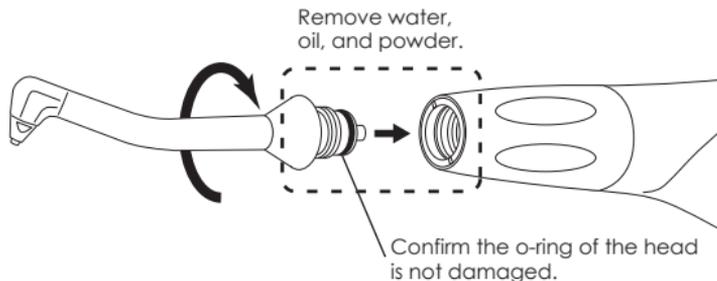


CAUTION

- 1) When connecting your coupling to this product, confirm secure connection after hearing a locking sound. Make sure the head and powder cap are firmly screwed in. A failure to attach correctly may cause injury due to instrument becoming disconnected or powder being scattered.
- 2) Never pull the handpiece out of your coupling while polisher is in operation. This may cause injury due to disconnection of the polisher. (For PPW-K or PPW-S)
- 3) Never release your coupling from the handpiece while polisher is in operation. This may cause injury due to disconnection of the polisher. (For PPW-W, PPW-B or PPW-N)
- 4) The head and powder cap must not be detached during operation. This may cause injuries due to instrument becoming disconnected, or powder scattering.
- 5) The air pressure at the coupling must be set within 0.25 to 0.4 MPa (about 2.6 to 4.0kgf/cm²). Excess air pressure will damage tooth surface and cause patient pain. It may also cause trouble during use such as injuries due to instrument damage, or powder scattering.

7.3 Attaching head

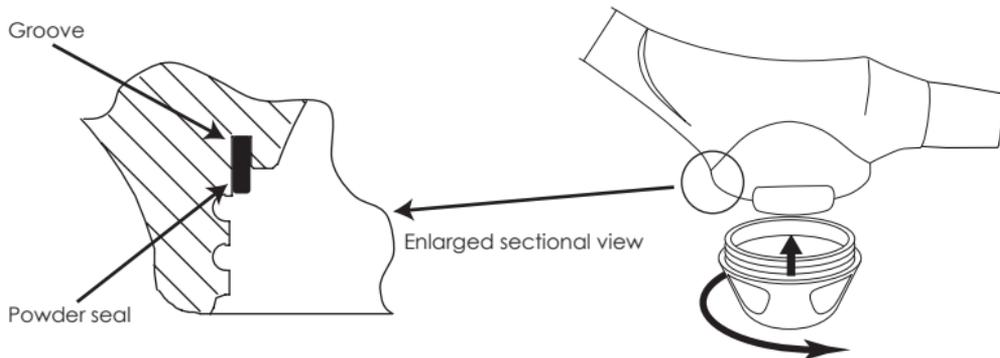
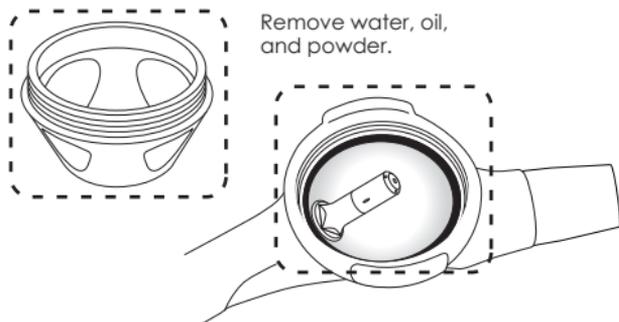
- 1) Polisher must be disconnected from a turbine hose of dental unit when attaching and detaching the head. If it is connected, disconnect from the turbine hose first.
- 2) Confirm the o-ring of the head is not damaged.
- 3) If water, oil, or powder adheres to head or inside the chamber unit's coupling, wipe off with a cotton swab or dry cloth.
- 4) Align the head to the thread of the chamber unit's coupling, turn the head in the direction of the arrow in the illustration until it stops. Confirm secure attachment.



7.4 Attaching powder cap

*** Water due to sterilization must be expelled by an idle run beforehand. Do not fill the powder yet.**

- 1) The powder cap must be attached or detached when polisher is not connected to a turbine hose. If connected, detach from the turbine hose.
- 2) If water, oil, or powder adheres to inside chamber unit, powder cap, or powder seal, wipe off with a dry cloth.
- 3) Confirm the powder seal (blue) is fully engaged in the groove of chamber unit shown in the illustration.
- 4) Turn the powder cap in the direction of the arrow in the illustration. Confirm secure attachment.



 **CAUTION**

- 1) Powder cap and powder seal must be attached firmly. An unstable attachment will cause the powder cap to undo during use and may cause injuries or powder scattering.
- 2) Remove powder remaining in/on the screw threads of the powder chamber, powder cap, and sealing surface of the powder seal. Remaining powder may cause premature wear of the threads and insufficient sealing which may cause powder scattering.
- 3) In case of screw thread failure of the chamber unit including wear and/or deformation, stop using the polisher. Ask for repair of the chamber unit together with the powder cap.

 **ATTENTION**

Remove water, oil, or powder remaining in/on the head, coupling of chamber unit, powder chamber, and powder cap. Otherwise, the powder will get damp and cause clogging.

7.5 Connecting to dental unit

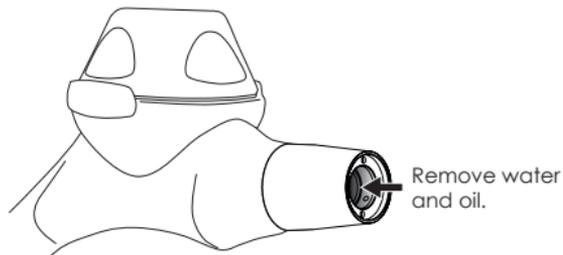
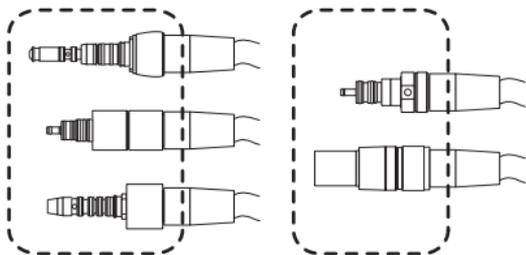
1) Cleaning of coupling

(a) Confirm no water or oil remains in the coupling on your turbine hose. Remove with a dry cloth if remains.

*** When a handpiece (air turbine, air scaler, etc.) is detached, water and oil remain at the joint. Remove the water and oil without fail.**

(b) Confirm no water or oil remains in the joint of polisher. Remove with a cotton swab if remains.

Remove water and oil.



ATTENTION

Remove water or oil remaining inside of the coupling on your turbine hose and joint of the chamber unit. Otherwise, the powder will become damp and cause clogging.

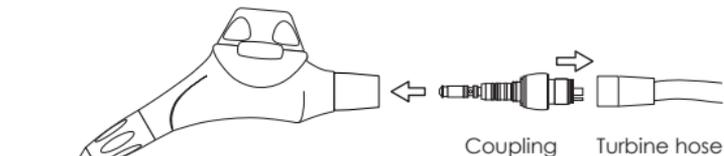
2) Connecting a coupling

Connect a coupling (separately sold) compatible with your polisher to your turbine hose. Confirm the coupling is firmly seated.

3) Connecting to turbine hose

(a) Insert your coupling on your turbine hose into the joint of polisher until you hear a locking sound. Confirm the handpiece is firmly seated.

(b) If your coupling has a light source, turn off the illumination switch of your dental unit.



CAUTION

When connecting your coupling to this product, confirm secure connection after hearing a locking sound. Make sure the head and powder cap are firmly screwed in. A failure to attach correctly may cause injury due to instrument becoming disconnected or powder being scattered.

ATTENTION

To avoid shortening the life of the light source (light bulb) of your coupling, turn off the illumination of your dental unit when using this product.

7.6 Water removal in channels (idle run)

- 1) Confirm no powder remains within the powder chamber.
- 2) Direct the nozzle to your cuspidor. Depress your foot control without water supply from the dental unit. Run for 1 minute to remove water remaining in the channels of polisher.



ATTENTION

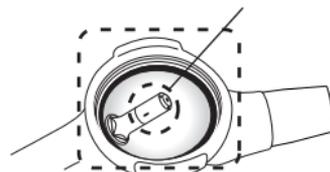
After sterilization, run polisher for 1 minute without powder before use. This run will expel remaining water inside. If water remains inside of sterilized main body, powder will become damp and cause clogging.

7.7 Powder filling

- 1) Remove polisher from the turbine hose before refilling with powder.
- 2) Detach the powder cap by turning in the direction of the arrow in the illustration above.
- 3) Confirm the powder stirring cap is attached in place.
- 4) If water, oil, or powder remains inside of powder chamber or powder cap, remove it with a dry cloth.
- 5) Fill sodium hydrogen carbonate powder not exceeding 15 g into the powder cap.
*** The powder must be placed into the powder cap. Take care not to spill the powder over the thread of the powder cap. If the powder is spilled over the thread, wipe it off with a dry cloth.**
- 6) Hold the chamber unit downward and the powder cap upward as shown in the illustration. Turn the powder cap in the direction of the arrow until it stops.
- 7) Confirm the powder cap is screwed securely in place.



Confirm the powder stirring cap is attached in place.



Remove water, oil, and powder.



Place the powder into the powder cap.





CONTRAINDIICATION AND RESTRICTION

- 1) Use sodium hydrogen carbonate powder for dental prophylaxis only. Other powder (for example, alumina powder) will cause a decrease in cleaning efficiency, powder clogging, or damage to the polisher.
- 2) Do not reuse the powder.
- 3) The powder must be filled into the powder cap. Filling into the chamber unit may cause a premature wear of the screw threads and insufficient sealing and powder scattering.



CAUTION

- 1) Confirm the powder cap is attached firmly. An unstable attachment will cause the powder cap to undo during use and may cause injuries or powder scattering.
- 2) Remove powder remaining in/on the screw threads of the powder chamber, powder cap, and sealing surface of the powder seal. Remaining powder may cause premature wear of the threads and insufficient sealing which may cause powder scattering.
- 3) If the powder cap has a crack or fissure, replace with a new one.
- 4) In case of screw thread failure of the chamber unit including wear and/or deformation, stop using the polisher. Ask for repair of the chamber unit together with the powder cap.



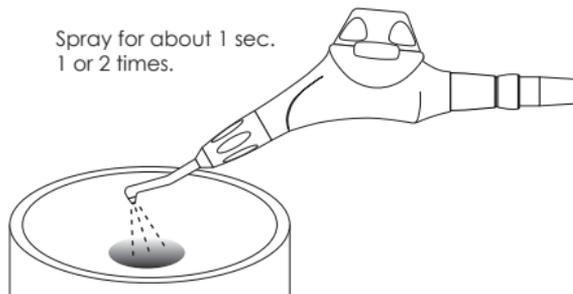
ATTENTION

- 1) Remove water, oil, or powder remaining in/on the head, coupling of chamber unit, powder chamber, and powder cap. Otherwise, the powder will get damp and cause clogging.
- 2) Do not overfill with powder.
- 3) Do not shake polisher after filling the powder. The powder may leak from the nozzle.
- 4) Always use dry compressed air and dry powder. Use of air and powder containing moisture or oil will cause powder clogging.
- 5) Make sure the powder stirring cap is attached. Improper attachment will lower the cleaning efficiency.

7.8 Confirming correct operation and water volume

- 1) Insert your coupling on your turbine hose into the joint of polisher until you hear a locking sound. Confirm the handpiece is firmly seated.
- 2) Direct the nozzle to your cuspidor.
- 3) Depress the foot control of your dental unit one or two times for about one second and confirm if:
 - air, water, and powder are sprayed,
 - water supply is sufficient,
 - no leak of air, water, and water from polisher.
- 4) If you have trouble, refer to "11. TROUBLE SHOOTING".

For water supply adjustment, use the water volume control of your dental unit.



CAUTION

- 1) When connecting your coupling to this product, confirm secure connection after hearing a locking sound. Make sure the head and powder cap are firmly screwed in. A failure to attach correctly may cause injury due to instrument becoming disconnected or powder being scattered.
- 2) Confirm no damage, no cracks, no breakage or no major corrosion is present on the product and it is safe to use.

ATTENTION

A lot of powder might be sprayed immediately after filling powder. Before using on a patient, spray into your cuspidor for one second one or two times to confirm operation.

7.9 Treatment

1) Patient, operator, and assistant protection

(a) Operator and assistant must wear protective eyewear and anti-dust mask.

(b) Protect the patient's face (other than oral cavity) with towels or protective eyewear.

*** If the patient wears contact lenses, the patient must remove them before treatment.**

(c) When spraying into an area around soft tissues such as gingiva, protect it with cotton in advance.

CAUTION

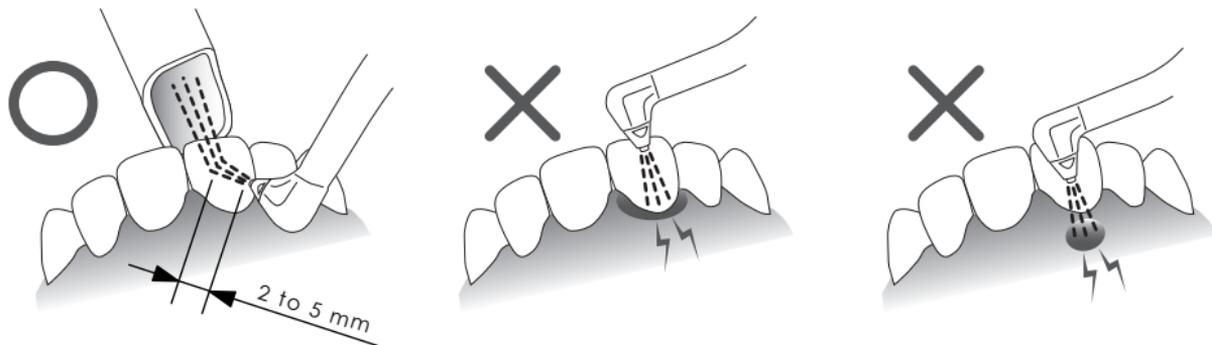
- 1) When using, the operator and assistant(s) must wear protective eyewear and anti-dust masks full-time. If the powder gets into your eyes, wash your eyes with water and consult an eye doctor.
- 2) During a treatment with polisher, protect the patient with towels or protective eyewear so that the powder does not enter mucous membranes (eyes, nose, tracheae) other than intraoral.

2) Spraying

Make your vacuum suction system ready to remove scattered powder. Direct the nozzle to tooth surface and depress your foot control to start spraying.

*** The prevention ability of tooth against discoloration is decreased after cleaning. Instruct the patient not to smoke or have foods or beverages with strong coloring effect such as tea and coffee for two or three hours after treatment.**

- When using for the first time, grasp the spraying area and cleaning effect with an extracted tooth or tarnished coin.
- Keep distance of 2 to 5 mm from the tooth surface.
- Spray from gingival margin to occlusal surface. Suction the spray with your vacuum suction system and avoid soft tissues.



- When cleaning a large area, spray while moving the nozzle minutely.
- The powder may be sprayed for a few seconds after releasing your foot control due to the residual pressure within the powder chamber. Collect the powder with your vacuum suction to avoid damaging soft tissues.
- Have the patient wash out his/her mouth as needed or after treatment.



CONTRAINDICATION AND RESTRICTION

1. Non-eligible patients

- 1) Never use this product on patients
 - on a low salt diet (due to hypernatremia, edema, pregnancy toxemia, etc.),
 - having a serious ulcer in digestive organs,
 - having a renal dysfunction,
 - having cardiac dysfunction,
 - having asthma or chronic pulmonary disease,
 - having electrolyte abnormality due to hypochloric alkalosis.
- 2) Avoid using this product on patients below, other than those stated in above 1):
 - having an intraoral injury or disease,
 - having a hyperemia, inflammation or bleeding in the intraoral cavity,
 - easily get oral mucosa inflammation or bleeding,
 - having allergies,
 - wearing contact lenses.
- 3) Depending on the patient's physical condition, allergy symptoms or stomatitis may occur. In such a case, stop using this product.

2. Usage

- 1) Never spray into the subgingival, root canal, or extraction socket. It can cause accidental symptoms such as emphysemas.
- 2) Never spray directly into the intraoral soft tissues (gingiva, mucosa). It can cause accidental symptoms such as surface damages.



CAUTION

- 1) Confirm secure attachment of the head and powder cap before every treatment. Loosening of the head or powder cap during use may cause injury due to instrument becoming loose or powder being scattered.
- 2) Avoid prolonged continuous use. Have the patient wash out his/her mouth enough as needed.
- 3) Do not put this product close to heat. It will cause damage on the body and malfunction, and may cause injury or powder scattering during use.

⚠ CAUTION

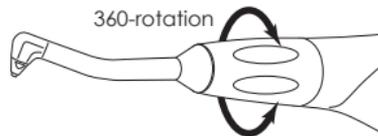
- 4) To avoid infection, wear suitable protective wears such as mask, gloves and eyewear when using.

⚠ ATTENTION

- 1) Always use with sufficient water. If the water is insufficient, the powder will scatter and the cleaning efficiency will decrease.
- 2) Do not spray directly to restorations such as crowns. It may scratch restorations.
- 3) Collect the sprayed powder with your vacuum suction system while using.
- 4) The powder may be sprayed for a few seconds after releasing your foot control due to the residual pressure in the powder chamber. Collect the powder with your vacuum suction system to avoid damaging soft tissues.
- 5) Take care so that the patient does not swallow too much powder.
- 6) The tooth cuticle is removed during the cleaning procedure and the prevention ability of tooth against discoloration is decreased. The tooth cuticle will be re-created by protein contained in saliva.
To avoid discoloration, instruct the patient not to smoke or have foods or beverages with strong coloring effect such as tea and coffee for two or three hours after treatment.

3) Turning the head

Rotate the head by turning the grip. The head rotates 360 degrees.



⚠ CAUTION

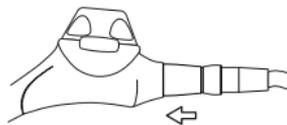
The head must be rotated by holding and turning the grip, not the head. Otherwise the head will loosen and this may cause injuries or powder scattering during use.

7.10 Other remarks on use

1) Disconnecting from the turbine hose

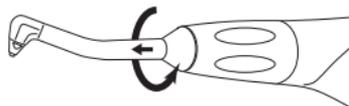
- (a) Detach the handpiece according to the instruction manual of your coupling.

* When reconnecting, clean the coupling on your turbine hose and inside of chamber unit's joint in advance referring to "7.5 1) Cleaning of coupling".



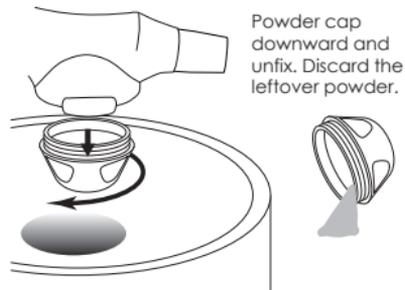
2) Detaching head

- (a) The head must be attached or detached when polisher is not connected to a turbine hose. If polisher is connected to a turbine hose, disconnect it from the turbine hose.
- (b) Turn the head in the direction of the arrow in the illustration and detach.
- (c) When reattaching, clean the head and inside of chamber unit's coupling in advance referring to "7.3 Attaching head".



3) Detaching powder cap

- (a) The powder cap must be attached or detached when polisher is not connected to a turbine hose. If polisher is connected to a turbine hose, disconnect it from the turbine hose.
- (b) Hold polisher keeping the powder cap downward. Turn the powder cap in the direction of the arrow in the illustration to detach. Detach the powder cap above your cuspidor, as the powder in the powder chamber may scatter when the powder cap is released.
- (c) Discard the leftover powder in the powder cap.
- (d) When refilling the powder and reattaching the powder cap, clean the inside of powder chamber and powder cap referring to "7.7 Powder filling".



 **ATTENTION**

The leftover powder must be discarded after treatment. When the powder gets damp, it will cause clogging.

8. MAINTENANCE AND CHECKS

8.1 Regular maintenance and checks

* Perform maintenance and checks as follows before sterilization and after clinic hours without fail.

ATTENTION

To use safely, check and maintain this product daily after clinic hours according to the instructions in "8. MAINTENANCE AND CHECKS".

1) Powder disposal

Detach the powder cap referring to "7.10 3) Detaching powder cap". Taking care of powder scattering, discard the leftover powder.

ATTENTION

The leftover powder must be discarded after treatment. When the powder gets damp, it will cause clogging.

2) Removal of remaining powder within polisher

- Attach the emptied powder cap to the chamber unit.
- Connect polisher to the coupling on your turbine hose.
- Direct the nozzle to your cuspidor. Depress your foot control without water supply from the dental unit. Run for 1 minute to remove the powder remaining within the channels of polisher.
- Disconnect polisher from your coupling.

Stop water supply.
Idle run for 1 min.



3) Cleaning

- (a) Wipe off saliva and blood on the polisher with alcohol.
- (b) Detach the head and powder cap from the chamber unit. Wash each part (in particular, where powder adheres) with running water.

ATTENTION

- 1) Do not use ultrasonic cleaners to clean this product. This will cause malfunction or damage.
- 2) Remove powder remaining inside and on the surface of polisher between treatment and sterilization. If the powder gets damp, it will cause powder clogging.

4) Water draining

- (a) Attach the powder cap and head to the emptied chamber unit.
- (b) Direct the nozzle to your cuspidor. Blow air into the joint of chamber unit with a three-way syringe to drain the water channels.



ATTENTION

- 1) Drain polisher before every sterilization and once a day after clinic hours.
- 2) Do not lubricate this product. Lubricant will be mixed into the compressed air and cause powder clogging.

5) Checking your air compressor

Check your air compressor referring to "7.1 4) Checking your air compressor".

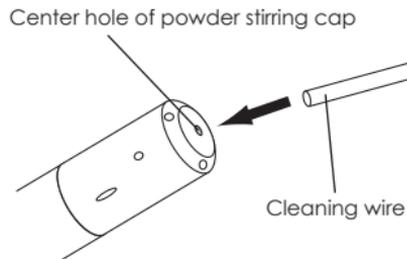
8.2 Cleaning at troubles in air and powder spray

In case of trouble in air and powder spray, clean each part of polisher. Cleaning must be done when polisher is disconnected from the coupling on your turbine hose.

1) Powder stirring cap cleaning (if the center hole of the stirring cap is clogged with powder)

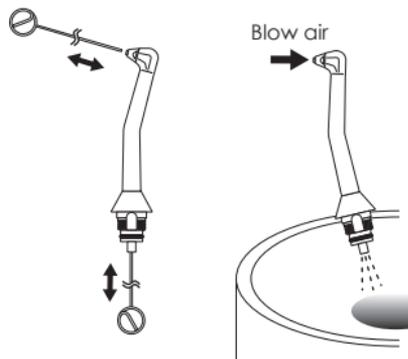
- Remove powder adhered on the center hole of the powder stirring cap with a cotton swab or dry cloth.
- Clean the center hole with the attached cleaning wire to remove the powder blocking the center hole.

(The cleaning wire does not pass through the center hole.)



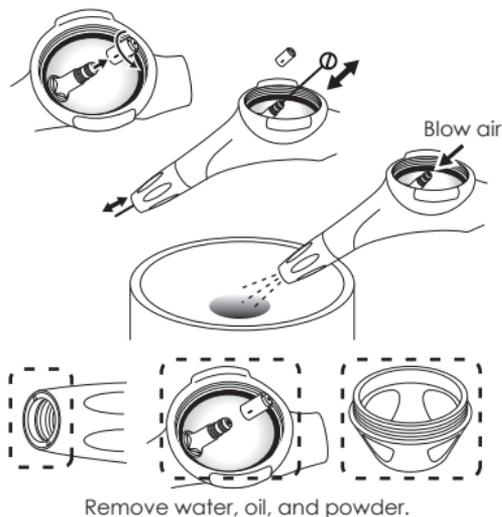
2) Head cleaning

- Remove the head from the chamber unit.
- Insert the cleaning wire into the spraying orifice of the nozzle and center hole of the coupling. Remove powder remaining within the channels using the cleaning wire.
- Blow air into the spraying orifice of the nozzle with a three-way syringe to remove powder remaining inside.
- If water, oil, or powder remains in the head, remove with a cotton swab or dry cloth.



3) Chamber unit cleaning

- (a) Detach the head and powder cap from the chamber unit.
- (b) Loosen the powder stirring cap from the powder pipe by turning in the direction of the arrow in the illustration and detach it.
- (c) Insert the cleaning wire into the powder pipe and remove powder remaining in the pipe.
- (d) Blow air into the powder pipe of the nozzle with a three-way syringe to remove powder remaining inside.
- (e) If powder remains inside coupling of the chamber unit, remove with a cotton swab or dry cloth.
- (f) If water, oil, or powder remains inside chamber unit or in the powder cap, remove with a cotton swab or dry cloth.
- (g) Attach the powder stirring cap to the powder pipe by turning in the direction of the arrow in the illustration.



ATTENTION

Make sure the powder stirring cap is attached. Improper attachment will lower the cleaning efficiency.

9. CLEANING AND STERILIZATION

9.1 Cleaning

Clean polisher according to "8.1 Regular maintenance and checks 1) to 4)" before sterilization.

⚠ CAUTION

To avoid infection, wear suitable protective wears such as mask, gloves and eyewear when using.

9.2 Sterilization

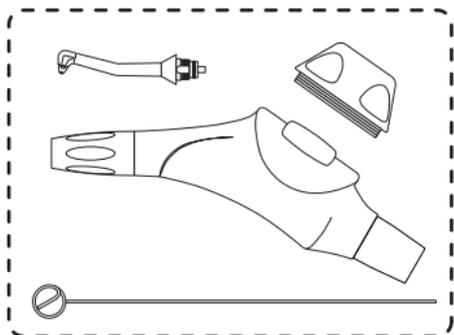
1) Sterilizability

Polisher (head, chamber unit, and powder cap) and cleaning wire are sterilizable in autoclave.

2) Sterilization (Sterilization must be done after every patient.)

- Remove the head and powder cap from the chamber unit. Confirm no powder remains in the powder chamber.
- Put the chamber unit (with head and powder cap detached) into a sterilization bag and seal it.
- Place each component sealed in the sterilization bag on a sterilization tray to avoid direct contact with sterilizer's inner chamber surface, and put into the autoclave.

The maximum sterilization temperature is 135°C (275°F). Sterilize at 134°C (273°F) for 3 minutes. Follow your local regulation for sterilization. Skip dry cycle to avoid damage.



Sterilizable in autoclave

 **CAUTION**

- 1) Sterilization must be done after every patient in order to prevent direct and cross infection.
- 2) To avoid infection, wear suitable protective wears such as mask, gloves and eyewear.

 **ATTENTION**

- 1) To avoid trouble and damage on the product, follow the instructions in "9. CLEANING AND STERILIZATION" when sterilizing.
- 2) Polisher is autoclavable up to 135°C (275°F). Sterilize at 134°C (273°F) for 3 minutes. Do not use drying cycle. Follow your local regulations for sterilization.
- 3) Do not sterilize with powder remaining in the powder chamber.
- 4) Do not sterilize polisher with instruments on which some medicine or chemical agent remains.
- 5) Do not immerse polisher in disinfectant liquids.
- 6) Do not use alkaline disinfectant and oxidized water (hard acid water or super acid water) for disinfection.
- 7) Dry heat sterilizers generate high heat that exceeds the maximum sterilization temperature of polisher. Do not use in order to avoid mechanical trouble or damage to polisher.
- 8) Depending on the conditions of your sterilizer or sterilizing methods, this product may discolor.
- 9) The chamber unit is made from a synthetic material and may rarely get minute scratches due to autoclave sterilization. But this will have little influence on performance. To have maintenance after 250 autoclave cycles or once every two years is recommended.

3) After sterilization

When the sterilization cycle is finished, take out sterilized polisher from the autoclave. Cool naturally. Dry naturally to avoid condensation.

9.3 Storage

After sterilization and natural drying, confirm no condensation remains and store. The powder is sensitive to heat and humidity. Store in a place of low temperature and moisture.

ATTENTION

- 1) For storing of this product, follow the instructions in "9.3 Storage".
- 2) The chamber unit and head must be dried completely before storage. If water remains, discoloration, rust, or powder clogging will occur.
- 3) Store and take care of polisher properly to keep it out of reach of persons other than dental professionals.
- 4) Do not store polisher in a place where it may be exposed to water.
- 5) Keep polisher in a place where it is not affected by barometric pressure, temperature, humidity, ventilation, strong sunshine, dust, salt or sulfurous air.
- 6) Keep polisher in places without vibration or shock.
- 7) Do not store polisher in a place where chemical agents are kept or some gas exists.

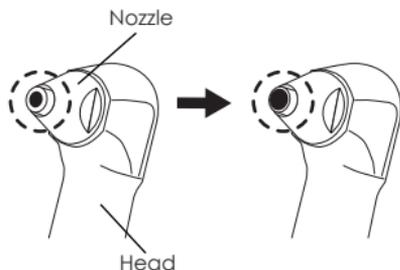
10. REPLACEMENT OF CONSUMABLE PARTS, DISPOSAL

* For disposal of used consumables, see "10.5 Disposal"

10.1 Replacement of head

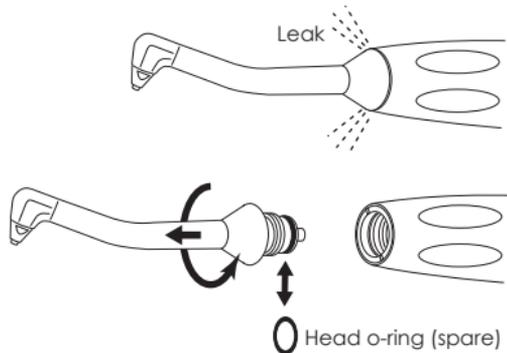
The nozzle of the head will wear out with use. A broadened spraying orifice will cause decrease in cleaning efficiency and difficulty in pinpoint spraying. When the spraying orifice has become larger like shown in the illustration, the work efficiency will be recovered by replacement of the head (separately available). Attach the head properly according to "7.3 Attaching head" when replacing.

* The entire head must be replaced, not only the nozzle.



10.2 Replacement of head o-ring

In case the o-ring at the coupling of the head is damaged or worn or, air, water, or powder leaks from the joint, replace the used o-ring with the provided head o-ring (spare). Attach the o-ring properly in place. Do not damage the surface of the o-ring when replacing.

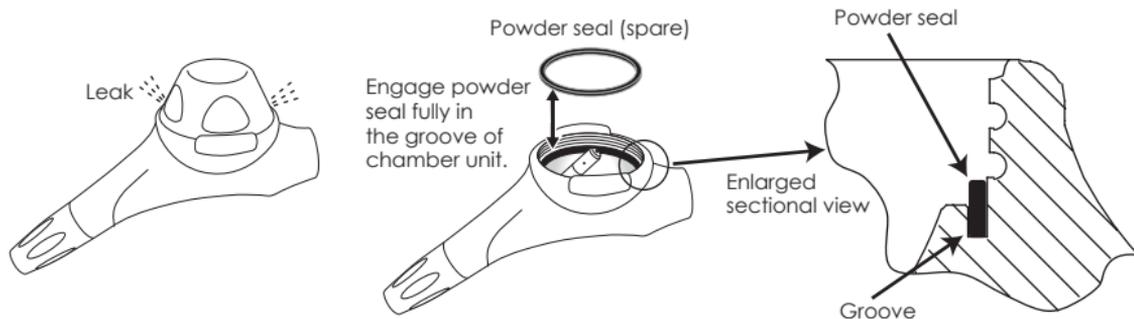


10.3 Replacement of powder cap

The transparency of the powder cap will lower with use and may result in decreased visibility inside the powder cap. In case you cannot see powder in the powder chamber, replace the powder cap (separately available). If the powder cap is cracked, it must be replaced with a new one. Attach the powder cap properly according to "7.4 Attaching powder cap." when replacing.

10.4 Replacement of powder seal

In case the powder seal attached into the thread of the powder chamber is damaged or worn or, air or powder leaks between the powder cap and powder seal, replace the used powder seal with the provided powder seal (spare). Follow the procedure below: If powder or something remains in the groove of the powder chamber, in which the powder seal is attached (see the illustration below), remove it with air from a three-way syringe. Clean the groove and attach the powder seal properly so that the powder seal fully seats in the groove (see the illustration below). Do not damage the surface of the powder seal when replacing.



CAUTION

When replacing o-rings and powder seal, be careful about the correct mounting location and direction. Incorrect mounting may cause injuries due to disconnection of the head or powder cap, powder scattering, leakage of air, water, or powder during use.

10.5 Disposal

Dispose of this product according to your local rules and regulations.

11. TROUBLE SHOOTING

If this product does not operate as stated in this manual, check your problem according to the list below. If your trouble is not corrected, or if your trouble is not listed below, contact your dealer.



CONTRAINDICTION AND RESTRICTION

This product must not be repaired by the user. In case of malfunction, contact your dealer for repair.

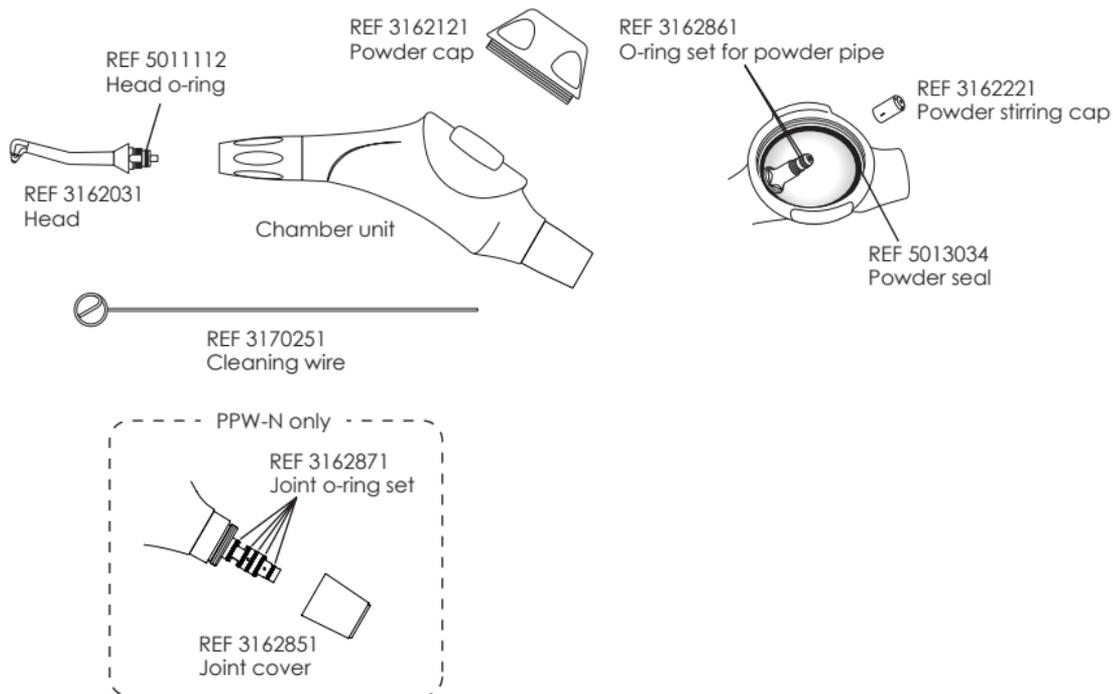
Symptoms	Possible causes	Countermeasures
1) No powder spray. Low cleaning efficiency.	<ul style="list-style-type: none"> * The center hole of the powder stirring cap is clogged with powder. * Powder clogging within the channels. * The powder stirring cap is not attached properly. * No air supply. * Low air pressure at the coupling. * The control system of the dental unit does not work. 	<ul style="list-style-type: none"> * Clean the powder stirring cap according to "8.2 1) Powder stirring cap cleaning". * Clean the head and chamber unit according to "8.2 2) Head cleaning" and "8.2 3) Chamber unit cleaning". * Attach the powder stirring cap properly according to "8.2 3) Chamber unit cleaning". * Set coupling pressure between 0.25 and 0.4 MPa. * Set coupling pressure between 0.25 and 0.4 MPa. * Check the control system using other handpiece or three-way syringe.
2) No water.	<ul style="list-style-type: none"> * Water supply system of your dental unit is shut off. * Water does not reach turbine hose. * Water channels of polisher is clogged. * O-ring(s) on your coupling is/are damaged. 	<ul style="list-style-type: none"> * Activate the water supply system of your dental unit. * Check the water supply system of your dental unit. * Ask your dealer for repair. * Replace the o-ring(s) on your coupling (separately sold).

Symptoms	Possible causes	Countermeasures
3) Leak (air, water, and powder) from powder chamber coupling.	<ul style="list-style-type: none"> * The head is not firmly attached. * The o-ring in the head is worn or damaged. 	<ul style="list-style-type: none"> * Attach the head firmly according to "7.3 Attaching head". * Replace with the attached head o-ring according to "10.2 Replacement of head o-ring".
4) Air and/or powder leak from near of the powder chamber.	<ul style="list-style-type: none"> * The powder cap is not firmly attached. * The powder seal is not properly attached in the powder chamber. * The powder seal is worn or damaged. * Powder adheres to the sealing surface (of the powder seal and/or powder cap). 	<ul style="list-style-type: none"> * Attach the powder cap firmly according to "7.4 Attaching powder cap". * Attach the powder seal properly according to "10.4 Replacement of powder seal". * Replace with the attached new powder seal according to "10.4 Replacement of powder seal". * Fill the powder into the powder cap properly according to "7.7 Powder filling".
5) Water leak from around the coupling on the turbine hose.	<ul style="list-style-type: none"> * O-ring(s) on your coupling is/are damaged. (For PPW-K, PPW-W, PPW-S or PPW-B) * O-ring(s) on your joint is/are damaged. (For PPW-N) 	<ul style="list-style-type: none"> * Replace the o-ring(s) on your coupling (separately sold). * Replace the o-ring(s) on the joint (separately sold).
6) Polisher cannot be connected to your coupling.	<ul style="list-style-type: none"> * Polisher is not compatible with your coupling. * The light cover at the front of the coupling is loose (if you use coupling with light). 	<ul style="list-style-type: none"> * Use polisher compatible with your coupling according to "7.5 Connecting to dental unit". * Turn the light cover at the front of the coupling to fix securely.

12. SPECIFICATIONS

<i>ITEMS</i>	<i>SPECIFICATIONS</i>				
Product name	POLISH PLUS				
Model	PPW-K	PPW-W	PPW-S	PPW-B	PPW-N
Connection	Multiflex® coupling	Roto Quick® coupling	Sirona® Quick coupling	Unifix® coupling	Mach®/Phatelus® coupling
Powder consumption volume	4 g/min (at coupling air pressure 0.4 MPa)				
Coupling air pressure	0.25 to 0.4 MPa (37 to 58 psi, 2.5 to 4.0 bar, 2.6 to 4.0 kgf/cm ²)				
Air consumption volume	10 L./min (at coupling air pressure 0.4 MPa)				
Water flow volume	45 ml/min (at coolant water pressure 0.2 MPa)				
Length	201 mm (7.9 inch)	200 mm (7.9 inch)	196 mm (7.7 inch)	196 mm (7.7 inch)	208 mm (8.2 inch)
Weight (without powder)	147 g (5.2 oz.)	139 g (4.9 oz.)	139 g (4.9 oz.)	136 g (4.8 oz.)	149 g (5.3 oz.)

13. COMPONENT PARTS



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Manufacturer:

MICRON Corporation

1-34-14, Higashiyukigaya, Ota-ku, Tokyo, 145-0065, Japan

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