

ProJet

Powder Jet Handpiece
Operation Instructions

VOLDENT MED-TECH

FORWARD

Thank you for buying a new VOLDENT ProJet 1 product. In order for the device to work trouble-free, more efficiently and safely, please read this manual carefully before starting to use, and use this device according to the regulations. Do not allow abuse for other purposes.

PRECAUTION

Please read the following warnings to avoid potential injury to people or damage to the instrument.

- Do not use this instrument to the following patients:
 1. Patients with respiratory illness.
 2. Patients have injury in mucous membrane of more than 3mm pocket depth. (Due to long time jetting near the soft tissues or the salivary gland, powder can be introduced into the injury. In extremely rare cases, this would increase the risk of emphysema.)
 3. Patients with grave ulcers or mucosal inflammation in the mouth or in digestive organs.
 4. Patients with pulmonary ventilation disorder or liver dysfunction or heart dysfunction.
 5. Patients with allergies.
 6. Patients who wear contact lenses.
 7. Patients who need to limit sodium intake (Hypernatremia, Poisoned during pregnancy, Kidney deficiency, Chronic respiratory disease, Chronic diarrhea) .
- During the operation, the operator should wear protective glasses and protective masks throughout the process, Patients should wear protective glasses
- It is recommended to use a suction device to suck off excess powder during operation.
- If the powder gets into the glasses accidentally, please rinse immediately with plenty of water and consult an ophthalmologist.
- Do not aim the nozzle directly at fillings, crowns or dentures, as this may cause damage to these restorations
- This instrument can only be used by dentists or professional operators.
- Before using the instrument, check whether all parts are damaged. If damaged, please stop using and contact the service personnel for maintenance, otherwise the instrument may be damaged and personnel may be injured.
- Do not disassemble and modify the instrument without authorization, which may cause damage to the instrument. Repairs must be carried out by qualified service professionals.
- Please clean and disinfect the instrument after being out of service for a long time.

INTRODUCTION

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It is a handheld dental instrument which is powered by a dental unit and jets the sandblasting powder on the surface of patient's teeth.

PERFORMANCE, STRUCTURE AND COMPOSITION

The product consists of a main body, a sandblasting handpiece, a sandblasting nozzle, a tail connector, and a powder chamber.

CONFIGURATION

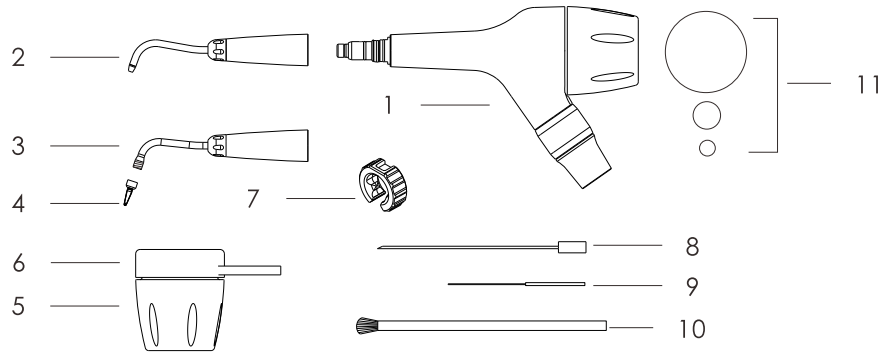


Figure 1 Diagram of Structure

- | | |
|--|------------------------------|
| 1 Main unit | 7 Sandblasting nozzle wrench |
| 2 Supragingival sandblasting handpiece | 8 Long cleaning needle |
| 3 Periodontal sandblasting handpiece | 9 Short cleaning needle |
| 4 Periodontal nozzle | 10 Cleaning brush |
| 5 Powder chamber | 11 Seal rings |
| 6 Powder chamber cap | |

MODEL

Model	Connection Type	Handpiece	Power Adjustment
ProJet 1	Midwest 4 holes	PJ-01 supragingival sandblasting handpiece	N/A
ProJet 1P	KAVO Multiflex / KAVO Multiflex LED	PJ-01 supragingival sandblasting handpiece	N/A
ProJet 2	KAVO Multiflex / KAVO Multiflex LED	PJ-01 supragingival sandblasting handpiece PJ-02 periodontal sandblasting handpiece	3 levels adjustable

SCOPE OF APPLICATION

The instrument can be used with prophylaxis powder to remove supragingival and periodontal plaque, soft tartar and stains on the teeth surface.

Recommended prophylaxis powder for supragingival scaling: sodium bicarbonate, glycine, erythritol, mesh number between 80~250. Recommended prophylaxis powder for periodontal scaling: glycine, erythritol, with a mesh number of more than 500.

Preventive measures:

- The storage environment should be clean and should be disinfected regularly.
- Product storage must be batched, marked and documented.

TRANSPORTATION

1. Excessive impact and shake should be prevented in the transportation. Lay it carefully and lightly and don't invert it.
2. It should not be mixed with dangerous goods during transportation.
3. Avoid sun, rain and snow during transportation.

MAINTENANCE

1. At the end of each day, use long and short needles to clean up each pipeline of the equipment.
2. Replace the powder chamber cap seal ring, seal ring 1 and seal ring 2 every 6 months.

ENVIRONMENTAL PROTECTION

The device does not contain harmful ingredients and can be disposed of and destroyed in accordance with relevant local regulations.

AFTER-SALE SERVICE

After this product is sold, if it cannot work normally due to quality problems, please contact the local dealer or the company with the warranty card for replacement or repair. Damages due to non-adherence to the operation instructions or wear out of parts are excluded from warranty.

The warranty of your product will be cancelled if you try to open it.

SYMBOLS

Trademark	ProJet 1 Model	Production Date	Manufacturer
Read Instructions	Caution!	Valid Period	Serial Number
water-disinfectant for thermal disinfection	sterilizable in a steam sterilizer (autoclave) at the temperature specified	Gear indicator	CE Mark
Atmospheric pressure	Temperature Limitation	Humidity Limitation	Medical device

2. ProJet 1P and ProJet 2

Connect the Multiflex quick coupling to the hose of dental unit, tighten the locking cap of the hose connector. After ensuring the quick coupling and hose are connected correctly, insert the quick coupling into the interface at the end of this instrument until hearing a "click" sound and confirm it is installed in place. (See Fig. 3)



Figure 3

⚠ Before installing the quick coupling, please ensure that the sealing rings are intact and undamaged. If damaged, replace it immediately before use.

LOAD PROPHYLAXIS POWDER

1. Screw out the powder chamber. (See Fig. 4)

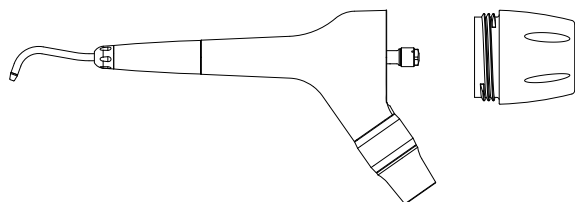


Figure 4

2. Fill the prophylaxis powder to the powder chamber, it is recommended to fill to the maximum indication mark on the chamber. (See Fig. 5)

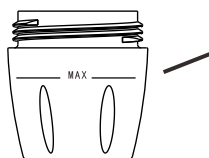


Figure 5

3. Before use, the powder chamber shall be sealed with the rubber cap, and the rubber cap shall be removed when installing the chamber.

4. Screw on the powder chamber to the main unit and tighten it.

- ⚠**
- Please use only powder provided or recommended by VOLDENT.
 - Make sure the powder chamber is absolutely dry.
 - Do not go over the 'MAX' limited.
 - Clean the threads of the powder chamber before screwing on the cap.
 - Do not shake the device as this could cause the powder to clog the tubes.

The product is designed for a large number of sterilization cycles, and the materials used for manufacturing are selected accordingly. However, the thermal stress and chemical stress will lead to product aging each time it is re-prepared for use. The maximum number of sterilization allowed for handpiece and nozzle is 500 times. See the following table for the cleaning, sterilization and disinfection requirements of each component:

	Pretreatment	Cleaning	Disinfection	Sterilization
Main Unit	√	√	√	√
Handpiece	√	√	√	√
Nozzle	√	√	√	√
Powder Chamber	√	√	√	√
Cleaning Needle	√	√	√	√
Wrench	√	√	√	√
Cleaning Brush	√	N/A	N/A	N/A

PREPARATION BEFORE CLEANING

Tools: 3-way syringe, tray, soft brush, clean and dry soft cloth.

It must be treated immediately after use, no later than 30 minutes after use. The steps are as follows:

- Remove the sand powder tank, sand blasting head and handle in turn and place them in the tray.
- Carefully brush the handpiece and nozzle as well as the connection position between the handpiece and the main unit with a clean soft brush until the surface dirt is not visible; Then use pure water (or distilled water/deionized water) to wash the dirt on the handpiece, nozzle, main unit and wrench, and then rinse the inside and outside of the powder chamber.
- Wipe the handpiece, nozzle, main unit, powder chamber and wrench dry with a clean soft cloth, and then put them in a clean tray.

⚠ The water used for cleaning must be pure water, distilled water or deionized water.

CLEANING

- According to EN ISO 15883, the detergent need to be certified as effective by CE.
- The cleaning procedure is applicable to handpiece, nozzle, main unit, powder chamber and wrench. The washing time is sufficient, and ultrasonic cleaning is prohibited.
- It is recommended to use a cleaning disinfectant conforming to EN ISO 15883. For specific steps, see the next section "Disinfection".

- ⚠**
- The detergent must be compatible with this product, and only freshly prepared solution can be used;
 - In the washing stage, the water temperature should not exceed 45 °C, otherwise the protein will solidify and be difficult to remove;
 - After cleaning, the chemical residue should meet the cytotoxicity test. Note: Write down the selected cleaning equipment, the steps and parameters of the treatment procedure, and the detergent.

DISINFECTION

- Carefully place the main unit, nozzle, handpiece, powder chamber and wrench in the disinfection basket. It is forbidden to touch each other.
- Use a suitable cleaning sterilizer and connect the internal water pipe to the cleaning sterilizer.
- Start the program.
- After the procedure is completed, take the parts out of the cleaning sterilizer for inspection and packaging (see the section "Packaging"). If necessary, dry repeatedly (see the section "Drying").

PRODUCT USE

Press the foot switch to run the instrument and adjust the water pressure and air pressure on the dental unit: Water pressure: 1.0 bar~2.5 bar (100~250 kPa), air pressure: 3.5 bar~4.5 bar (300~450 kPa).

⚠️ Excessive air pressure will cause cracks or ruptures in the powder chamber and powder chamber cover, and even cause human injury.

PREPARATION BEFORE TREATMENT

1. Patients should wear goggles at all times to prevent powder from entering the eyes.
2. Operators should wear goggles and protective masks throughout the process to prevent bacteria, viruses or sandblasting powder from being inhaled.
3. Place absorbent cotton rolls under the lips to prevent the powder from being brought into the patient's saliva and effectively protect the gums.
4. Use the high-speed evacuator of your dental unit to evacuate the air and powder mixture deviated by the treated tooth.
5. The evacuator must be handled by the same operator.

OPERATION OF SUPRAGINGIVAL SCALING

1. Do not direct the nozzle directly towards to the surface of teeth. Respect a distance of 3 to 5mm. Vary the angle between nozzle and tooth from 30 to 60 degrees. (See Fig. 9)
2. After the treatment, polish the teeth surfaces by setting the water flow rate to the maximum.

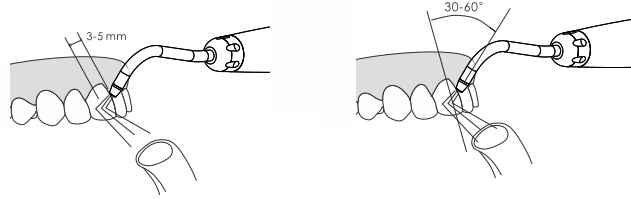


Figure 9 Supragingival sandblasting

OPERATION OF PERIODONTAL SCALING

1. Install the periodontal sandblasting head onto the nozzle mounting base. (See Fig. 10)

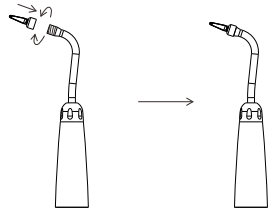


Figure 10 Periodontal sandblasting nozzle

2. Load the prophylaxis powder, blast the powder outside the mouth for 3-5 seconds in advance to ensure that water and air can be evenly sprayed from the nozzle hole.
3. During periodontal sandblasting, move the nozzle slowly along the gum edge, and use the nozzle to remove the plaque of the shallow periodontal pocket within 3 mm (See Fig. 10); it can also be used for plaque removal on the dental surface.

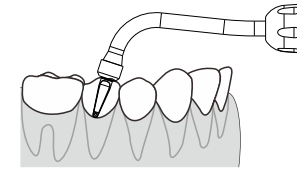


Figure 10 Periodontal sandblasting

4. It is recommended to sandblast at each periodontal pocket point for no more than 5 seconds, do not stay too long in local sandblasting during scaling.
5. The water volume and air pressure of the host machine can be adjusted to the appropriate level according to the conditions of dental plaque or pigment during scaling.

⚠️ The air powder jet is powerful. It can cause injury to the gums or an emphysema caused by the introductions of air into the soft tissue spaces. Do not direct the nozzle directly at the gum tissue or into the gingival sulcus.

After the treatment, the keratin and protein layer on the tooth surface are completely removed, the teeth do not have any natural protection with respect to coloring. Tell you patient that during 2 to 3 hours following treatment, he should neither smoke, nor consume food or drinks which could strongly color the teeth (tea, coffee...).

The periodontal nozzle needs to be disinfected with alcohol before use and cannot be sterilized at high temperatures; the nozzle is a disposable product and cannot be reused.

TROUBLE SHOOTING

TROUBLE PREVENTION

1. After each use, remove the powder chamber and replace its installation with another clean chamber.
2. Continue to run the instrument for about 10 seconds, and let the compressed air blow out the residual powder in the instrument.
3. Pull out the quick coupling and blow out the residual water inside the instrument by blowing out the interface of the instrument with compressed dry air.

SOLUTION TO NOZZLE BLOCKAGE

1. Remove the sandblasting head with the wrench.
2. Use a short cleaning needle to align the front end and rear end of the nozzle, insert and rotate. (See Fig. 12)
3. Purge it with a 3-way syringe.

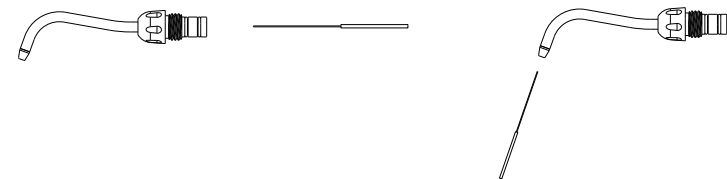


Figure 12

SOLUTION TO MAINUNIT BLOCKAGE

1. Remove the sandblasting handpiece and powder chamber.
2. Use the side notch of the special wrench to align with the square hole of the cap at the intake pipe end, and screw out the intake pipe cap. (See Fig. 13)

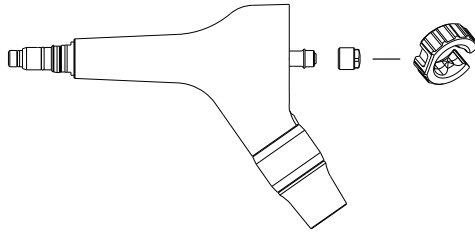


Figure 13

3. Use a long cleaning needle to dredge the inner tube. (See Fig. 14)

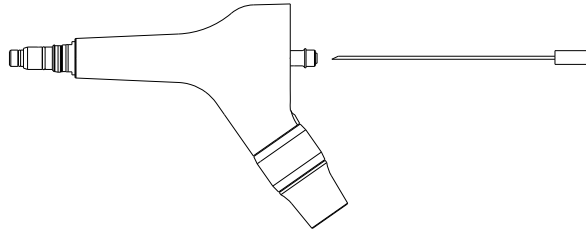


Figure 14

4. Purge the inner pipe and intake pipe cap with compressed dry air.
 5. Install the intake pipe and lock it with the special wrench.
- If you encounter a problem that cannot be solved by the above methods, please contact your dealer or contact the manufacturer directly.

CLEANING, DISINFECTION AND STERILIZATION

PRETREATMENT

Effective sterilization can only be carried out after effective cleaning and disinfection. Please ensure that as part of the sterility of the product during use, only fully validated equipment and product-specific procedures are used for cleaning/disinfection and sterilization, and the validated parameters are observed during each cycle.

- ⚠ Please comply with the applicable legal requirements of your country/region and the health regulations of the hospital or clinic, especially other requirements related to virus inactivation.**
Use of ultrasonic cleaning equipment and strong cleaning disinfectant (alkaline pH>9 or acidic pH<5) will shorten the service life of the product. In this case, the manufacturer assumes no responsibility. Do not expose the equipment to high temperature above 138 °C.

ADJUSTMENT OF POWDER OUTPUT (Applicable to PorJet 2 only)

- The adjustment knob is set at the tail of this product, which is divided into three levels: (See Fig. 6)
- Maximum gear: it provides sufficient cleaning performance to solve stubborn dental surface plaque;
 - Middle gear: it is applicable to the cleaning of supragingival plaque and dental surface which is generally easy to clean; or used for cleaning the teeth interproximal surface with periodontal nozzle;
 - Minimum gear: it is used for cleaning of shallow pocket periodontium and teeth gaps with periodontal nozzle.

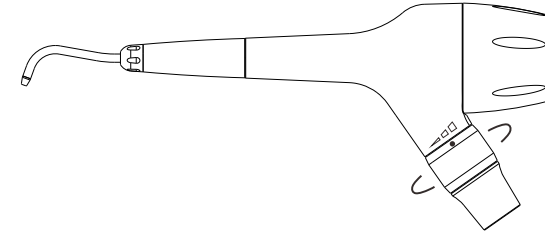


Figure 6 Gear adjustment indication

- ⚠ The gear adjustment must be carried out when the work is stopped.**

INSTALLATION OF NOZZLE AND HANDPIECE

- ⚠ Before installing the nozzle, please ensure that the sealing rings are intact and undamaged. If damaged, replace it immediately before use.**
Ensure that the handpiece sleeve and the nozzle connection are dry.

1. Screw on the nozzle clockwise to the handpiece sleeve and lock it with the wrench. (See Fig. 7)

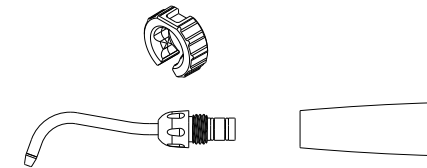


Figure 7

2. Insert the assembled handpiece into the connection of the main unit until hearing a "click" sound, and ensure it is connected in place. (See Fig. 8)

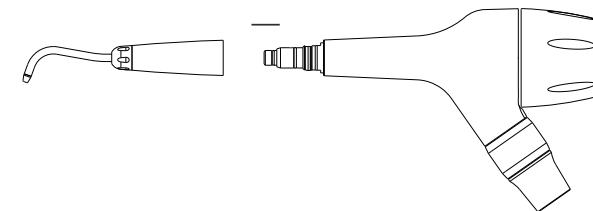


Figure 8

- ⚠ a) Sterilization must be carried out within 2 hours after the cleaning stage. If conditions permit, automatic disinfection is preferred;**
- b) The cleaning sterilizer shall have passed the CE certification (conforming to EN ISO 15883) and be effective;**
- c) Use high-temperature disinfection function. The temperature shall not exceed 134 °C, and disinfection at this temperature shall not exceed 20 minutes;**
- d) The sterilization cycle shall comply with the sterilization cycle in EN ISO 15883.**

DRYING

If your cleaning and disinfection process does not have automatic drying function, please dry it after cleaning and disinfection.

1. Lay a clean white cloth on the workbench, align the handpiece, nozzle, main unit, powder chamber and wrench with the white cloth, and then dry the cleaned parts with filtered dry compressed air (maximum pressure 3 bar). If no liquid is sprayed on the white cloth, the drying is completed.
2. It can also be dried directly in a medical drying oven (or oven). The recommended drying temperature is 80 °C - 120 °C, and the time should be 15 - 40 minutes.
3. After drying, remove all parts from the drying oven and check them.

- ⚠ a) The product must be dried in a clean place;**
- b) The drying temperature shall not exceed 138 °C;**
- c) The equipment used shall be inspected and maintained regularly.**

PACKING

Quickly pack the sterilized and dried handpiece, nozzle, main unit, powder chamber and its accessories in the medical sterilization bag (or special support, sterile box).

- ⚠ a) The packaging bag used shall comply with ISO 11607, be able to withstand the high temperature of 138 °C and have sufficient steam permeability;**
- b) The packaging environment and related tools must be cleaned regularly to ensure cleanliness and prevent the entry of pollutants;**
- c) Avoid contacting parts of different metals during packaging.**

STERILIZATION

Only the following steam sterilization procedures (partial vacuum pre-sterilization procedures) can be used for sterilization, and other sterilization procedures are prohibited

- The steam sterilizer shall comply with EN 13060 or EN 285 certification and EN ISO 17665.
- The maximum sterilization temperature is 138 °C.
- At 134 °C, the sterilization time is at least 4 minutes.
- At 134 °C, the maximum sterilization time is at least 20 minutes.

STORAGE, TRANSPORTATION AND MAINTENANCE

STORAGE

1. Excessive impact and shake should be prevented in the transportation. Lay it carefully and lightly and don't invert it.
2. Do not put it with other dangerous goods together during transportation.
3. This device should be stored in an environment with a relative humidity of 10% to 95%, an atmospheric pressure of 50kPa to 106kPa, and a temperature of -10°C to +40°C.
4. After sterilization, the product should be packaged in a medical sterilization bag or a clean airtight container and stored in a special storage cabinet. Retention must not exceed 7 days. If it is exceeded, it should be reprocessed before use.

APPLICATION

- Remove subgingival plaque for placing sealants.
- Removes periodontal plaque and prevents periodontitis.
- Surface Preparation prior for bonding/cementation of inlays onlays, crowns and veneers.
- Surface preparation prior to placing composite restorations.
- Cleaning prior to bonding orthodontic brackets.
- Effectively remove plaque and stain for orthodontic patients.
- Cleaning implant fixture.
- Remove stain for shade determination.
- Remove plaque prior to fluoride treatment.
- Polishing on the surface of teeth after scaling treatment by piezo scaler.

CONTRA-INDICATION

Patients suffering from chronic bronchitis or asthma must not, under any circumstances, be treated by this product. The jet of air and powder could cause respiratory difficulties.

TECHNICAL DATA

Water input pressure	0.5bar~2.0bar(70~220kPa)
Air input pressure	3.5bar~4.5bar(350~450kPa)
Water flow	20~100ml/min
Air flow	2~15NL/min
Operating conditions	10°C~40°C Relative Humidity: 30%~75% Air Pressure: 50kPa~106kPa
Storage and transport Conditions	-10°C~40°C Relative Humidity: 10%~95% Air Pressure: 50kPa~106kPa

INSTALLATION

- ⚠ Before installing the device, please ensure that the quick connector, power jet handpiece, powder chamber, powder chamber cap, tail connector, air inlet pipe and air outlet pipe in the powder chamber are completely dry. Drying can be done with a 3-way prayer.**

CONNECTING TO THE HOSE

1. ProJet 1
Connect the rear connector of the main unit to the hose of dental unit, tighten the locking cap of the hose connector, ensure the main unit and hose are connected correctly. (See Fig. 2)

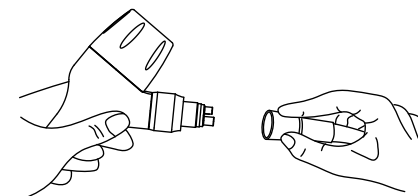


Figure 2