



## FAQs:

### **1. Are iVac tips sterile? How many uses?**

The iVac tips, as well as the accessories, are sterilizable. In the case of iVac 35 and 50 tips, they must be sterilized before use and discarded after use. In the case of accessories, they must be cleaned and sterilized before use and discarded after 5 uses. In addition, the iVac connector must be cleaned and sterilized before use and used until a defect is noticed.

### **2. iVac items are presented in blister packs. Do they come sterile?**

No, all components need to be sterilized before the first use.

### **3. My piezo ultrasonic device is not the iVac. Can I use any piezo ultrasonic device, or must it be the iVac?**

The instructions and technical guide were based on iVac piezoelectric ultrasonic unit. The advantages of using this model are that this device comes with three accessory bottles that facilitate the change of irrigants during irrigation. In addition, iVac has a semi-automatic flush function, which simplifies cleaning the equipment's internal components and solenoid valves. However, the iVac can be used in "S" and "E" piezo ultrasonic types, which are the most common. But the operator needs to know which kind of connection the model uses, S or E. The iVac comes with the S-type connector in the Intro kit, and the E type is available as an accessory sold separately.

### **4. Can I use a Cavitron or a magnetostrictive ultrasonic device with the iVac?**

No. The Cavitron type of device is only for hygiene.

### **5. I have a piezo ultrasound, but I don't know if it's type S or E. How do I know what type of connector my equipment uses?**

Different types of connections were introduced by manufacturers to force consumers to buy original inserts from each company. Unfortunately, big manufacturers use this method to retain their customers. Regrettably, the vast majority of instructions for use do not contain this critical detail, but it is worth looking at. Consulting the manufacturer's customer service can also be a good choice. If your equipment is not on the list below, a test may be attempted as long as it is done carefully. Insert the S-type insert by hand threading (do not use any tools). Slowly feel if the connector threads without forcing. The thread design is different if the connector stops after the first few turns. Don't force it. Remove the connector and try an E type.

**S-Thread:** Adec, Bonart, Dentsply/Tulsa, DTE, EIE2, J. Morita, Hu-Friedy (S Series), Obtura Spartan, NSK, Varios, Satelec Newtron, Satelec Suprassom, Acteon, iVac (Pac-Dent), Spartan, Sybron Endo, Vista P5, Ultrawave XS, VDW.

**E-Thread:** Bonart (ART-SP2 model only), Dentamerica, EMS, Hu-Friedy (E Series), Mectron, Parkell, Woodpecker, W&H, Mini Piezon.

#### **6. My piezo ultrasonic device doesn't have a reservoir. Can I still use iVac?**

Yes, you can. Check the tech guide for the sequence for use with a **syringe and cannula**. The iVac intro kit comes with .60 cannulas that can be used for simultaneous irrigation. Auxiliary aspiration can also be done with a .60 or larger cannula. Remember to only activate the iVac when the canal is full of irrigating solution. Do not activate the iVac outside the canal without irrigation as the tip end may melt from the high vibration generating heat.

#### **7. Irrigating solution overflows when using iVac. How to avoid this?**

The suction capacity of tip 35 is quite limited, given the very thin inner diameter of the cannula. In a well-calibrated vacuum pump situation, the iVac 35 tip can aspirate a volume of 5ml in a minute and a half. But there are variations in the capacity of vacuum pumps, and it is always interesting to check if the pump has its suction capacity adjusted. Therefore, the irrigation volume in this situation tends to be greater than the aspiration volume. In these cases, it is recommended to use supplementary suction. The iVac intro kit comes with a connector for both a low vac terminal (recommended for the iVac tip) and another for the high vac terminal to be used with the .60 cannula and perform additional aspiration. It is interesting to remember that lower teeth require less irrigation volume, given the working position. Likewise, depending on the operating situation, maxillary teeth need not increase the fluid volume just for the jet to reach the pulp chamber. In these cases, additional aspiration is also required.

Remember that endodontic treatment cannot be performed without a rubber dam in absolute isolation. Isolation must be created with care, using a gingival barrier between the crown margin and the rubber dam to promote the area's sealing and prevent irrigation solution leakage into the patient's oral cavity.

#### **8. My piezo ultrasonic is built into my equipment. Can I still use iVac?**

Yes, you can. Turn the irrigation (with water) off. Check the tech guide for the sequence for use with a syringe and cannula. The iVac intro kit comes with .60 cannulas that can be used for simultaneous irrigation. Auxiliary aspiration can also be done with a .60 or larger cannula. Remember to only activate the iVac when the canal is full of irrigating solution. Do not activate the iVac outside the canal without irrigation as the tip end may melt from the high vibration generating heat.

#### **9. My equipment has a reservoir, but I am afraid of using sodium hypochlorite and ruining my equipment. Is there any way to avoid the residual action of hypochlorite?**

All equipment in your office needs maintenance, and your piezo unit is no exception. Sodium hypochlorite outbreaks metal parts and produces oxidation and deterioration of the metal. Although most internal parts are polyethylene or silicone, the valves and pump can be attacked by hypochlorite if left in contact for many hours. The most significant danger is in the solenoid valve, which is very sensitive to the permanence of hypochlorite and is usually responsible for the malfunction. Fortunately, maintenance is quite simple, and the irrigation protocol for using the iVac always ends with distilled water, which helps in the equipment's maintenance. Some key points to be followed:

- Try not to use sodium hypochlorite in high concentrations. Ultrasonic activation compensates for the action of hypochlorite, so there is no need for concentrations above 2%;
- The most critical maintenance action is flushing with distilled water after use. Even if the next patient is an endodontic treatment and you will use the irrigation protocol again, rinse thoroughly after use. If your equipment does not have a flush operation setting, place distilled water in the reservoir and remove the iVac tip from the connector. Set the irrigation volume to maximum and press the foot pedal, pointing the connector towards a disposable plastic cup. Hold for 40 seconds. Your equipment will be free of harmful chemical residues and ready for new use.
- In the case iVac, never leave the irrigant bottle installed after use, as it is in contact with the valve and may leak liquid into the equipment. Instead, remove the bottle or reservoir from the device after use and, in the end, flush it with distilled water.

**10. I am using iVac as indicated, but I notice a mist forming during the vibration with irrigation. How do we avoid the mist?**

The mist formation is probably due to power, which is vibration amplitude. The first attempt would be to decrease your device's power until you realize there is no more mist formation. The ideal for activating the irrigant is 70% of the maximum power. Still, each piezo ultrasonic device has a different resonance calibration; therefore, the connector may vibrate differently, producing the mist. Try to find the ideal point by decreasing the power and setting the irrigant volume to the minimum possible.

**11. The final irrigation protocol with the equipment seems to be very long. Is it indispensable to run this protocol?**

The iVac is a project monitored by researchers in endodontics throughout its development. The objective was to ensure that each system element, including the suggested final irrigation protocol of use, was adequately tested and based on scientific evidence. The proposed protocol showed a high cleaning capacity with very low apical extrusion. The operator can choose the final irrigation protocol under a clinical judgment since the iVac is an irrigation delivery system with concomitant activation. In addition, the negative pressure and the working length cannula positioning bring safety.

**12. Where do I position the iVac inside the canal? Do I need to make back-and-forth movements? Can I leave it in position?**

This depends a lot on the final shaping file diameter and taper. Instruments with .04 or even .06 taper are highly recommended. Furthermore, for the smaller tip of the iVac (green, 35) to be positioned in the apical third, the instrumentation should ideally end in a flare between 25 .06 to 35 .04. Best position is closest to the working length without locking the cannula's tip. Obviously, if the end of the tip locks, there will be no suction. A desirable position would be plus or minus 0.5 millimeters short of the working length. There is no need to move the cannula, but sometimes it is only necessary to control the volume of irrigant inside the canal.

**13. Can the iVac canula separate inside the canal?**

iVac is made from a special polymer that gives it strength and flexibility. Unlike metal cannulas or activation tips, the iVac can follow the canal curvature and still provide vibration and aspiration. However, vibration generates heat, especially in resonance nodules point, which causes the temperature to rise beyond the polymer's melting point. Cannula tip melting or deformation will only happen if the operator activates the cannula outside the canal or without irrigation. The canal must always be with an irrigating solution, and it must be constantly renewed.

**14. Can I use EDTA as an irrigant with the iVac?**

Yes. The suggested protocol recommends that 2% NaOCl be used for 3 minutes, or 10 ml, followed by 30 seconds of activation only. To do so, turn off the irrigation, disconnect the elbow connector from the cannula and activate the liquid for 30 seconds. Then use EDTA for one minute or 5 ml. Next, re-irrigate with NaOCl at the same rate used the first time. Finish with a minute of distilled water or 5 ml. Do not forget to flush the equipment with distilled water after the end of the session to clean the device internally.

**15. Can I use Chlorhexidine as an irrigant with the iVac?**

Chlorhexidine can be used without iVac for final irrigation after distilled water. There is no need for iVac. Just soak the canal with Chlorhexidine and leave it on for at least a minute. Dry the canal and proceed with the obturation.

**16. In the suggested protocol, there are two lines, one with concomitant irrigation of the reservoir and the other with a syringe and cannula. Which is the best?**

Both proposals are suitable. The difference is only the type of piezo device in use. In piezo with a reservoir or bottles, such as iVac, irrigation can be done using different bottles of irrigants connected to the device. It is ergonomic, more manageable, and eliminates the need for syringe irrigation.

**17. Can I use the iVac during instrumentation or just in the final irrigation?**

You definitely can use iVac during instrumentation. However, the probability of clogging will be more significant because the debris produced may clog the cannula inlet. The suggestion is to use the yellow tip (50) during instrumentation. If it clogs, disconnect the end of the short tube from the long tube. Next, connect the short tube female connector to a Luer-Lock syringe with water. Press the syringe's plunger gently until you notice that water comes out of the tip of the cannula.