

VSS[®] Electrosurgical Unit



MD Rx ONLY

This manual, in whole or in part, should not be considered a substitute for formal training in electrosurgery. Appropriate veterinary dental professional education is strongly recommended prior to using this device clinically.



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What's Included

- (1) VSS® Monopolar Electrosurgery Unit (VSS4000)
- (8) Different Electrodes;
 - ▶ Troughing Point – C73 (VSS3522)
 - ▶ Horizontal Loop – P16 (VSS3530)
 - ▶ Large Round Loop – M34 (VSS3515)
 - ▶ Vertical Loop – P88 (VSS3529)
 - ▶ Angled Wire – M11 (VSS3532)
 - ▶ Small Ball – M51 (VSS3517)
 - ▶ Straight Blade – M72 (VSS3523)
 - ▶ Long Fulgurating Needle – M61 (VSS3511)
- (1) Foot Switch
- (1) Handpiece and Cable (VSS3541)
- (2) Self-stick handpiece holding clips
- (1) Indifferent Ground Plate and Cable (VSS3551)
- (1) AC Power Cord
- (1) Operating Instructions / Instructions for Use

This precision dental device was designed, manufactured and is serviced in the United States of America for:



Veterinary Services and Supplies, LLC
 200 Daniels Way, Suite 240
 Freehold, NJ 07728
 848-482-7201
Email: veterinaryservicesandsupplies@gmail.com

Specifications

Power Requirements:	Line Voltage: 120 Volts +/- 10% AC, 60 Hz, 2 amps maximum
Fuses:	T2.5A, 250 V, 5x20mm (Both line and neutral fused)
Operating Frequency:	1.4 -1.7 MHz (megahertz)
Maximum Power Output:	50 Watts rms (@ 500 Ohm load) approximate
Maximum Output Voltage (no load):	300 Volts rms
Operating Environmental Conditions:	10-35°C, 30-75%rh, 700-1060hPa
Transport and Storage Conditions:	10-43°C, 10-90%rh non-condensing, 500-1060hPa
Unit Size:	3 ¼" H x 7 ¾" D x 9 ¼" W (83mm x 197mm x 235mm)
Unit Weight:	6.1 pounds (2.8 kg)
The attachment plug is used as the mains disconnecting device.	





Device Description

The VSS® Electrosurgery Unit is a veterinary electrosurgery unit that features a low-impedance, high radiofrequency (1.4 – 1.7 MHz) to cut and coagulate soft tissue.

Indications for Use

The VSS® Electrosurgery Unit is useful in numerous routine restorative and operative veterinary general and dentistry procedures including:

- Access to subgingival caries
- Bleeding control and coagulation
- Edentulous ridge recontouring and tissue trimming
- Sculpting tissue for acceptance of an ovate pontic
- Excision of hyperplastic and hypertrophic tissue
- Gingivectomy/gingivoplasty
- Periodontal flap surgery
- Controlling localized bleeding
- Tissue biopsy
- Crown lengthening

Contraindications to Use

Because of the potential for electromagnetic interference, this device should not be used on animals (hereinafter, “patients”) by clinicians with cardiac pacemakers, internal defibrillators, intracorporeal fluid pumps or any other implantable electronic devices, or in close proximity to sensitive patient monitoring devices such as pulse oximeters.

Clinical Precautions

- **Caution:** For all operating tables or surfaces on which the patient is to be situated during electrosurgery (“hereinafter operating surface(s)”), especially those made of steel or other conductive metal, **A SUITABLE INSULATED SURGICAL PAD MUST BE PLACED ON THE OPERATING SURFACE TO ELECTRICALLY ISOLATE THE INDIFFERENT PLATE AND THE PATIENT FROM THE OPERATING SURFACE.** The insulator pad will help to minimize RF energy loss and help to prevent unintended injury to the patient and/or surgical team

members if they come in contact with the operating surface during the electrosurgical procedure.

- **Caution:** The indifferent plate is a capacitive type and does not require any direct electrical contact with bare skin and will work through fur. No adhesives or gels are needed or used.
- **Caution:** Never operate the electrosurgery unit without using the patient indifferent plate.
- **Caution:** Always turn the power off before touching the electrode. After locking the electrode in the handpiece, examine it carefully to assure that the metal shaft is fully seated with no metal exposed at the base.
- **Caution:** Be sure the handpiece, cable and electrodes are completely dry before using. Inspect the handpiece and cables regularly to ensure their integrity.
- **Caution:** Before each use, inspect the electrode to assure that the plastic sheathing (insulation) covering the metal shaft is intact. Do not bend the electrode where it is insulated, as this may crack the plastic sheath.
- **Caution:** Release foot switch before inserting or removing the handpiece from the patient’s mouth.
- **Caution:** Do not allow cables to be coiled or twisted around metal objects.

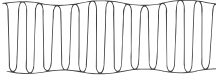
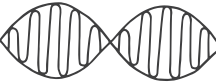

Warnings

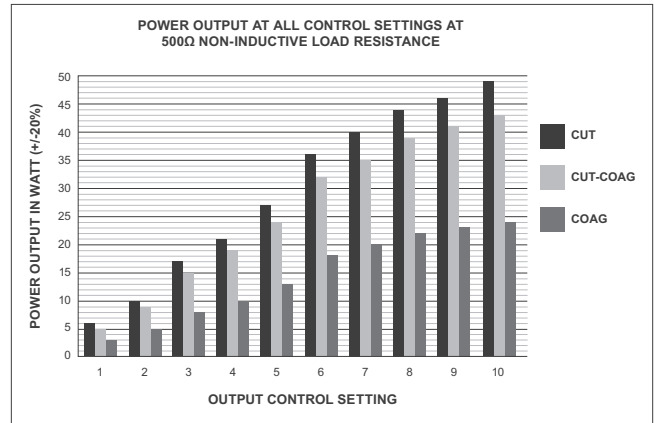
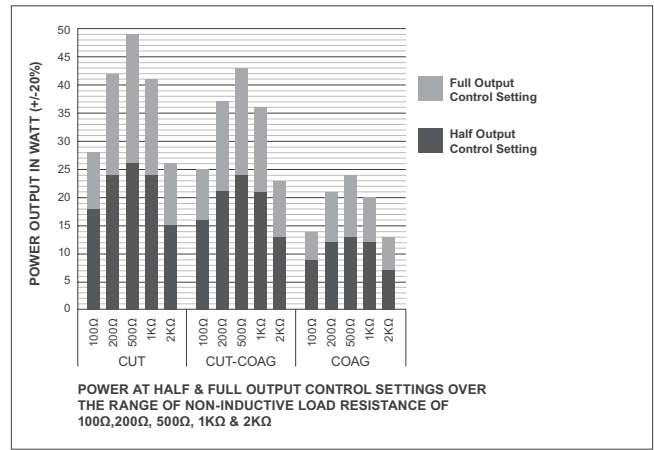
- **DO NOT OPEN CASE: NO USER SERVICEABLE PARTS INSIDE.**
- **CAUTION:** For all operating tables or surfaces on which the patient is to be situated during electrosurgery (“hereinafter operating surface(s)”), especially those made of steel or other conductive metal, **A SUITABLE INSULATED SURGICAL PAD MUST BE PLACED ON THE OPERATING SURFACE TO ELECTRICALLY ISOLATE THE INDIFFERENT PLATE AND THE PATIENT FROM THE OPERATING SURFACE.** The insulator pad will help to minimize RF energy loss and help to prevent unintended injury to the patient and/or surgical team members should they come in contact with the operating surface during the electrosurgical procedure.
- Internal service is to be made only by VSS® personnel. To avoid the risk of electric shock, this equipment must only be connected to a properly grounded electrical outlet.
- Always exert caution during use. Electrosurgery units are designed to allow controlled destruction of soft tissue and must be used carefully.

- Do not use in any situation where the electrode will touch metal implants (anywhere in the patient's body), bone or teeth as this may result in electric shock, bone necrosis or implant rejection.
- Stop use immediately at the first sign of tissue blanching and avoid prolonged tissue contact. Allow tissue to cool for an appropriate interval between cuts. Excessive exposure may retard healing and cause sloughing.
- Do not use in the presence of flammable or explosive gases. Use of nitrous oxide/oxygen analgesia is acceptable. Solvents of adhesives should be allowed to evaporate before the use of electrosurgery. Some material may be ignited by sparks produced in normal use of the equipment (for example, cotton wool and gauze when saturated with oxygen). Endogenous gases may be ignited by electrosurgery.
- The unit should not be immersed in water or other liquids. Avoid placing where it can fall or be pulled into liquid. Do not reach for the device if it has fallen into liquid. Do not use the device after it has fallen into liquid. Return it to VSS® for servicing.
- Do not open the case of the unit—there are no user serviceable parts inside.
- Do not modify this device. Modification may violate safety codes and endanger patient and operator. Any modification will void the warranty.
- Interference produced by the operation of high frequency surgical equipment may adversely influence the operation of other electrical equipment. In case of interference, de-energize unit and increase distance to susceptible equipment. Connection to a different power circuit may also reduce interference.

High-Frequency (RF) Output Modes

The VSS® Electrosurgery Unit generates three different high frequency waveforms. Each has differing surgical characteristics, which cause different histological effects on soft tissue.

<p>RF Mode No. 1— “CUT MODE” (cutting with least coagulation):</p> <p>A filtered, unmodulated current for cutting with the least amount of coagulation. Suited for closed wound surgery where incisions will be sutured.</p>	 <p>Fully rectified, fully filtered.</p>
<p>RF Mode No. 2— “CUT/COAG MODE” (cutting with balanced coagulation):</p> <p>A fully rectified, modulated, undamped current for cutting with coagulation when control of bleeding is desired. It is the most widely employed current in dentistry and is suited for cutting procedures where incisions will not be sutured.</p>	 <p>Fully rectified, unfiltered.</p>
<p>RF Mode No. 3— “COAG MODE” (full coagulation without cutting):</p> <p>A partially-rectified current for coagulation without cutting. This waveform has been found most effective for precise pin-point surface coagulation with minimal tissue destruction.</p>	 <p>Partially rectified, unfiltered.</p>



Get the Most Out of Your VSS® Electrosurgery Unit

Tips to improve treatment outcomes, protect your warranty, and assure that your unit runs right first time every time.

- Fully insert clean, tissue-free electrodes into the handpiece to assure that they transmit all power directly to the patient. Replace electrodes when necessary to maintain performance.
- Always work under adequate anesthesia whenever using the electrosurgery device.
- Electrosurgery is best performed on moist (but not wet) tissue. Dry tissue will cause the electrode to drag, and will require higher power to cut properly.
- Proceed slowly and carefully. Remember, you can always remove more tissue, but you can't add tissue if you remove too much.
- Use high volume evacuation to control burnt tissue odor, and low volume evacuation when appropriate intraorally to manage irrigating fluid accumulation in your patient's throat.
- **VSS'S ELECTROSURGERY UNITS SHOULD NOT BE ALTERED BY THE USER IN ANY WAY.** For example, never cut or remove the company-installed foot-pedal cord, to shorten or lengthen it. Unauthorized changes to the unit will instantly void your warranty.

If you need a special cord length, or if you have any questions about your new unit, please E-mail our Technical Support Service at: veterinaryservicesandsupplies@gmail.com.

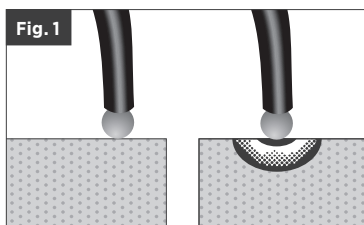
Instructions for Use

Connecting the Unit:

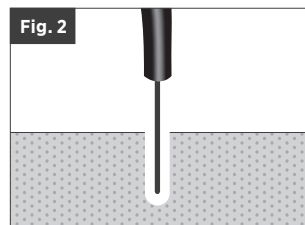
1. Locate the device where it will be convenient. Make sure the AC power rocker switch in the rear of the unit is in the OFF position before connecting the power cord. Plug power cord into the back of unit and then plug the power plug into a confirmed grounded electrical outlet. **NEVER OPERATE THE UNIT ON AN UNGROUNDED ELECTRICAL CIRCUIT.**
2. Plug the patient indifferent plate and surgical handpiece into the matching color-coded sockets on the front panel.
3. The indifferent plate should be positioned under the patient for maximum coverage. To prevent direct contact between the indifferent plate and the patient, the indifferent plate should be overlaid with a thin surgical towel prior to positioning the patient on it.
4. If the patient is on their stomach (prone position), be sure NOT to fold the limbs under the patient on top of the surgical towel overlaid plate. Doing so may compromise contact and therefore effectiveness.
5. Position the plate under the least hairy (or furry) area of the patient as possible.
6. The patient indifferent plate must be used for all electrosurgical procedures. The entire area of the indifferent plate should be placed to promote maximum, nonconductive indirect contact with the patient, preferably under the patient's upper back when possible. **NEVER ATTACH THE INDIFFERENT PLATE TO A METAL SURFACE.**
7. Make sure the unit is turned off before touching or changing electrodes. Select the appropriate electrode for the procedure and make sure the metal electrode is clean, and that the plastic sheathing (insulation) is in good condition. Insert electrode into surgical handpiece, making sure it is fully seated with no metal shaft exposed. Turn the collar of the handpiece until electrode is locked in place.
8. Push the AC rocker switch on the rear of the unit to the ON position. Turn the mode selector knob on the front panel from OFF to the chosen operating wave form and the power output knob to select the power for the case at hand. The appropriate indicator LEDs will light to show that the unit is on. Always verify settings before using.

Operating the Unit:

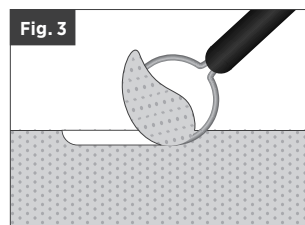
1. Always verify power settings before use.
 - a. Use the lowest possible power setting for the procedure at hand. Once the power is set, the unit's power output is adjusted automatically by the unit in response to the tissue condition at the operative site. This eliminates the need for repeated minor power adjustments.
 - b. For coagulation with ball electrodes, an appropriate initial power setting is "3" (Fig. 1). Coagulation is related to the length of time the electrode is in contact with the tissue, the size of the electrode, the circular or spotting motion used during tissue contact and the power level. Whitish blanching at the site indicates coagulation has occurred.



- c. For incisions using needle-type electrodes, an appropriate initial power setting is "4" (Fig. 2).



- d. For excisions using small loop-type electrodes, an appropriate initial power setting is "5". (Fig. 3)



- e. When using larger loop electrodes, an appropriate initial power setting is "6".
 - f. For fulguration (carbonization of tissue), use mode #1. An appropriate initial power setting is "8".
 - g. If a clean electrode drags during cutting, or if hemostasis does not occur during coagulation, increase the power to the next higher setting until desired therapeutic results are achieved.
2. Good hand support and finger rests are necessary before tissue is contacted. To activate the handpiece, assure that the electrode is safely positioned within the surgical field and depress the foot pedal. When the handpiece is active, the green RF indicator LED will light and an audio tone will sound.
 3. Tissues being operated upon should ALWAYS be slightly moist to dissipate heat and maintain conductivity. However, excess moisture will lessen effectiveness and may cause patient discomfort. The right moisture balance makes for the best treatment.
 4. Local anesthesia is required for all electrosurgical treatment.
 5. To avoid minor shocks, use only non-conducting (plastic) instruments when performing electrosurgical procedures.
 6. Operate with the electrode tip as perpendicular as possible to the plane of surgical intervention. Keep the electrode in constant, controlled, uninterrupted motion. Cut with a light, smooth, even stroke. Avoid electrode penetrations of more than 1mm in depth. For deep incisions, make repeated shallow penetrations with a back and forth, wiping stroke, and allow approximately 10 seconds between incisions for the tissue to cool.
 7. Periodically wipe carbonized tissue tags from the electrode with an alcohol-moistened wipe, making sure to de-energize the unit first by removing your foot from the foot pedal. The electrode must be clean to maximize the precision of the incision.
 8. Familiarize yourself with the use of the VSS® Electrosurgery Unit by practicing on a fresh piece of moist, lean beef or pork at room temperature. Cover the indifferent plate with a plastic bag and place the meat directly on top of it. Work in a well-ventilated area to avoid breathing the cutting fumes.

Important Information About Electrodes

- **ALWAYS TURN THE POWER UNIT OFF BEFORE TOUCHING OR CHANGING ELECTRODES, AND KEEP YOUR FOOT OFF THE FOOT PEDAL DURING THIS PROCEDURE.**
- Before each use, make sure the plastic insulation sheathing covering the electrode is completely intact. Replace the electrode if damaged. Check the integrity of the handpiece and cable at this time as well.
- Make sure the electrode is fully seated in the handpiece (with no metal shaft exposed) and is locked in the handpiece.
- **DO NOT BEND THE METAL SHAFT OF THE ELECTRODE,** as you may damage the plastic insulation sheathing. If you want to alter the shape of the bare metal cutting portion of the electrode, do so only before its first use by bending the cutting wire at the end of the electrode away from the start of the insulation, using the appropriate orthodontic plier, to avoid nicking or breaking the wire.

Electrodes must be kept spotlessly clean. Dirty electrodes will impair their function, and cause unnecessary tissue damage. Between uses, wipe electrodes clean with an alcohol-moistened pad to remove charred tissue.

While electrodes may be autoclaved several times, they are a consumable item, and are meant to be periodically replaced. They are not covered by the warranty.

Odor Control

Clinical use of electrosurgery generates fumes from the tissues being treated, which will create unpleasant odors in the OR. Use of high-volume evacuation equipment during surgery will remove most of the odor. Air fresheners sprayed in the room prior to surgery may also help to minimize odors.

Common Clinical Problems and Their Causes

Excessive elimination of tissue or excessive thinning of a gingival collar.

- Improper electrode selection (e.g. using a wide loop electrode on the labial surface of lower anterior teeth where a straight needle electrode is indicated).
- Power set too high.
- Poor surgical technique or case selection.

Dragging electrode action (even at the recommended dial setting).

- Excessively dry field.
- Too deep tissue penetration (more than 2 mm).
- Failure to use the indifferent plate.
- Inadequate contact between the patient and indifferent plate (sometimes due to positioning under a heavily hairy area.)
- Impediment at site of contact.
- Power set too low.

Retarded healing or tissue sloughing.

- Power set too high.
- Dirty electrode.
- Electrode penetration too deep.
- Electrode movement not controlled well by operator (e.g. motion too slow, erratic electrode motion, staying too long in one spot, picking or pecking at tissue). Use a constant, controlled, even motion.
- Poor moisture control—operative site must be moist, but not too wet.
- Poor surgical technique or case selection.

Cleaning and Infection Control

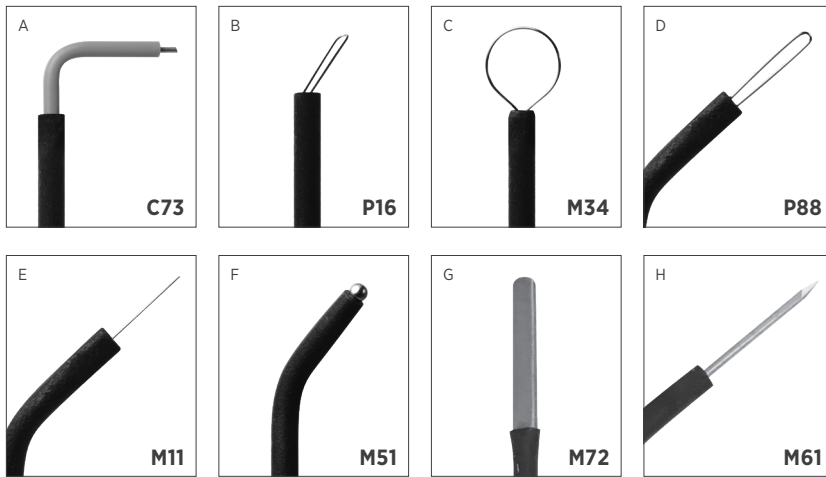
- Rinse the Handpiece and Electrodes under warm running water for 30 seconds to remove any external or internal soil or debris.
- Using a soft soapy cleaning brush to assist in the cleaning, if necessary. Use non-ammoniated detergent or dishwashing soap. Do not use ammoniated cleansers or disinfectants.
- Rinse the item again under warm running water for 30 seconds to remove any residual soap and blot dry with a dry lint-free towel.
- Wipe device with a lint-free towel that has been saturated in an EPA-approved, hospital-grade intermediate or high-level disinfectant (minimum 2.5% Glutaraldehyde solution), following the instructions for use provided by the disinfectant manufacturer.
- Dry with a dry lint-free towel.
- Handpiece and Electrodes may be sterilized in any conventional steam autoclave following manufacturer's instructions. A typical steam sterilization cycle is 132 +/- 2°C for 4 minutes (Vacuum), or 132 +/- 2°C for 15 minutes (Gravity), followed by a 15-minute minimum cool-down period.
- Use a steam sterilization pouch that is compliant with ISO 1140-1 Type 4 and 11607 standards. Once items are sterilized, adhere to the shelf-life specified by the pouch manufacturer. After sterilization, inspect the device in the autoclave bag for integrity. If suspicion about the item exists, discard it and order a replacement from VSS® or your dealer.
- **DO NOT USE DRY HEAT OR CHEMCLAVE ON THE HANDPIECE AND ELECTRODES.**

Service and Parts

Within the US, all service must be performed by authorized Veterinary Services and Supplies, LLC personnel. Equipment needing service in the US should be returned, freight pre-paid, via approved common carrier (e.g., USPS, UPS, FedEx), and adequately insured. Return all accessories with the unit and include an explanation of the problem. Pack in the original box, add plenty of cushioning material, and over box the unit during shipping. Transit should maintain a dry temperature of 0°F - 110°F. You will be contacted for your approval of the repair, along with any associated costs, prior to any work. The unit will be repaired and returned to you.

Outside the US, repairs must be made by a Veterinary Services and Supplies, LLC-authorized facility.

If you have any questions or problems with the installation or use of your VSS® Electrosurgery Unit, call Technical Support at 848-482-7201.



Electrodes

- A. C73 – Troughing Point (VSS3522)
- B. P16 – Horizontal Loop (VSS3530)
- C. M34 – Large Round Loop (VSS3515)
- D. P88 – Vertical Loop (VSS3529)
- E. M11 – Angled Wire (VSS3532)
- F. M51 – Small Ball (VSS3517)
- G. M72 – Straight Blade (VSS3523)
- H. M61 – Long Fulgurating Needle (VSS3511)

Recommended Electrodes for Specific Applications

Procedure	Electrode(s)
Access to Subgingival Caries— Provides a clean, dry restorative field	#M11, #P88, #P16
Cementing Restorations— For more retentive cementation	#M34, #P88, #P16
Bleeding Control and Coagulation— For a cleaner operative field	#M51
Widening Gingival Sulcus— Provides space for impression material beyond prep margin	#C73
Lengthen Clinical Crowns— To create a workable clinical crown length	#M11, #P88, #P16
Esthetic Tissue Contouring— For a more esthetic appearance	#M11, #P88, #P16
Recontour Edentulous Ridges— To make impression taking more accurate and comfortable, or for the preparation of ovate pontic sites	#M11, #M34, #P88, #P16
Removal of Hyperplastic and Hypertrophic Tissue— Ideal in case of medication-induced gingival hyperplasia	#M11, #M34, #P88, #P16
Pericoronitis— To expose partially-erupted third molars	#M34, #P88, #P16
Performing Gingivectomy or Gingivoplasty	#M11, #M34, #P88, #P16
Frenectomy— Relieve excess muscle tension and tissue pull and improve esthetics	#M11
Exposing Teeth with Delayed Eruption— Allow orthodontic eruption to proceed	#M11, #M34, #P88, #P16
Performing Tissue Biopsy— Controlled removal of suspect lesions with minimal tissue damage	#M11, #M34
Periodontal Flaps— Controlled, sharp incisions for better healing	#M11

Procedure	Electrode(s)
Exposing Pre-Placement Implant Sites— For fast exposure of the implant placement site; IMPORTANT: AVOID CONTACT WITH THE BONE.	#M11, #P88, #P16

Replacement Parts

- Handpiece and Cable (VSS3541)
- Indifferent Ground Plate and Cable (VSS3551)
- Interchangeable Electrodes (See above. Not shown at actual size). Additional electrodes available at www.vetservicesandsupplies.com

Warranty and Terms of Use

Please consult technical support or Veterinary Services and Supplies, LLC directly at the below:

200 Daniels Way, Suite 240
Freehold, NJ 07728
848-482-7201

Email: veterinaryservicesandsupplies@gmail.com



















PLEASE NOTE: Electrodes are meant to be periodically replaced and as such are not covered by the warranty.

Conformance to Standards



The Veterinary Services and Supplies, LLC VSS® Electrosurgery Unit is ETL listed and conforms to IEC 60601-1, 60601-1-2 and 60601-2-2. Veterinary Services and Supplies, LLC's quality system is certified to ISO13485. Certified to CAN/CSA C22.2 No. 601.1.

Explanation of Symbols Used

	Follow instructions for use
	Package contents
	Manufacturer
	Qualified User Symbol
	Medical Safety Classification Symbol – Type BF Equipment
	Dangerous high voltage
	Temperature limitations
	Do not use if package is damaged
	Keep dry
	Catalogue / stock number
	Unique Device Identifier
	Medical Device
	Referenced to ground at high frequencies
	Protective Earth Connection
	Do not dispose this product into the ordinary municipal waste or garbage system
	Single use only
	Sterilizable in a steam sterilizer (autoclave) at the temperature specified
	Non-Sterile