

Key Points for the Use of the Patient Return Electrode in Electrosurgery



For patient safety, use dual-pad plates whenever possible.

When a single plate is used, the quality of skin contact is not detected by the device; therefore, the plate contact shall be continuously monitored throughout the surgery.

Correct use and proper placement of the plate are among the most important factors for the effective and safe application of Monopolar electrosurgery.

Before placing the plate, shave the hair at the contact area.

Improve the electrical conductivity at the plate site by cleaning the skin and gently massaging the area (to increase local blood flow).

Select the plate site as close as possible to the surgical site. Ensure that the heart and/or any pacemaker are not located between the surgical site and the plate.

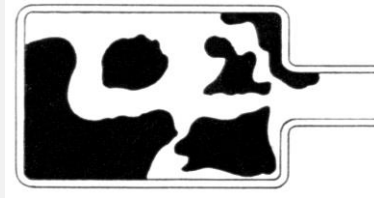
Do not place the plate over large superficial blood vessels, bony prominences, or areas with poor or compromised blood circulation.

Always verify that the insulation and connector of the patient return electrode (neutral electrode) cable are intact and undamaged before use.

If conductive implants or conductive parts are present in the patient's body, select the patient return electrode site so that these conductive parts are not located in the current path.

Do not use water, saline solution, or a wet cloth to improve contact between the patient return electrode (neutral plate) and the patient under any circumstances.

Select the type and size of the patient return electrode (neutral plate) according to the minimum required contact area and the selected output power, and position it so that good contact is established between the plate and the patient's skin. If the effective contact area is reduced due to poor or incomplete contact, increased current density at the contact site may occur, resulting in burns.



Reduction of the Effective Plate Area

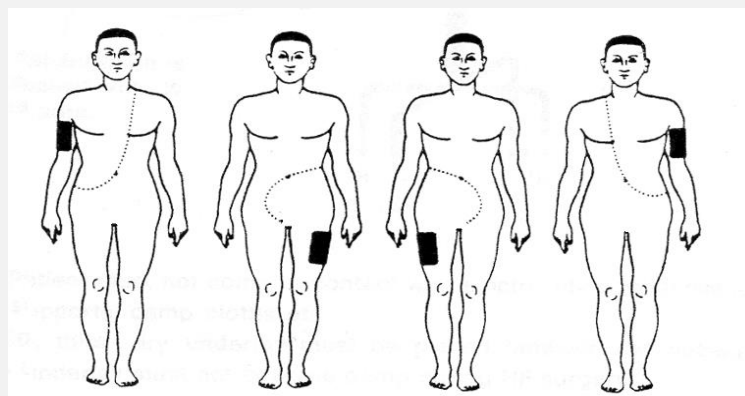


An area that effectively conducts electrical current.



An area that does not conduct electrical current, either because it is not in contact with the skin or because its conductivity is significantly reduced due to oxidation or contamination with fatty or greasy substances.

The entire flat current-conductive area of the patient return electrode (neutral plate) shall be securely applied to an appropriate site with normal blood circulation (such as the upper arm or upper thigh) and positioned as close as possible to the surgical site. The current path between the Monopolar active electrode and the patient return electrode shall be kept as short as possible and shall not pass through the heart or lungs.



Use only patient return electrodes (neutral plates) that are approved by the National Medical Device Directorate (IMED), or plates supplied by reputable manufacturers such as **Bowa, Erbe, Fiab, Martin, Shuyou**, or equivalent manufacturers. Use of unapproved or non-certified plates may result in burns or other patient injuries.

When polymer patient return electrodes (neutral plates) are used, only standardized silicone-based types shall be used. Non-standard rubber plates from unknown manufacturers may cause burns. Worn or aged polymer plates may deteriorate over time and lose their performance, increasing the risk of thermal injury.

For reusable (permanent) patient return electrodes (neutral plates), apply an appropriate conductive gel evenly over the entire surface of the plate. Secure the plate firmly in position using elastic straps or bandaging to ensure good contact with the patient's skin. If the patient is repositioned, recheck the correct attachment and contact of the plate.

If conductive gel is not used, ensure that no liquids or moisture—such as blood, irrigation fluids, disinfectants, or patient perspiration—reach the plate contact area during the procedure. Penetration of such fluids may increase the risk of burns at the contact site.

Do not loop the patient return electrode (plate) cable around metal objects. This may cause current leakage through metal objects, and induced high-frequency currents may cause heating of these objects and result in burns.

After the surgery, remove the patient return electrode (neutral plate) gently and inspect the contact area on the patient's skin for any injury or possible signs of burns.

Never deform or bend the patient return electrode (neutral plate) contrary to the manufacturer's instructions. Ensure that the plate has no tears, cuts, or discontinuities.

Use of non-standard, defective, or unauthorized accessories may result in deactivation of the patient return electrode contact quality monitoring system (REM).

It is recommended that the placement site of the patient return electrode (neutral plate) and the condition of the patient's skin be documented in the patient records before connecting the plate.

Before starting the surgery, carefully inspect the patient return electrode (neutral plate) and connect it to the device only if it is intact.

If an intact single pad plate is connected to the device, the LED indicating single-pad plate connection shall illuminate.

If an intact dual pad plate is connected and is in full contact with the tissue, the LED indicating dual pad plate connection shall illuminate. Otherwise, the warning LED indicating improper plate connection will illuminate and the plate alarm will be activated.

If the patient return electrode (neutral plate) is not connected to the device, or if any damage occurs along the connection path between the plate cable and connector and the device that results in interruption of the connection, an appropriate alarm shall be generated, and activation or continued operation of the Monopolar generator shall be inhibited.

In accordance with the applicable Particular Standard for electrosurgical devices, when a conductive patient return electrode is used for adult patients or patients weighing more than 15 kg, a dual pad plate shall be used.



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