

Best Practices in LigaSure™ Vessel Sealing

Since 1999, the LigaSure™ vessel sealing system has been used safely and effectively in nearly 2 million surgical procedures worldwide. When used according to the manufacturer's instructions, the LigaSure™ system is an effective method for sealing vessels, lymphatics, and tissue bundles up to and including 7mm in diameter. The purpose of this bulletin is to summarize the LigaSure™ instructions for use and to highlight some of the tips and best practices to maximize your success.

1. Start by making sure that you are familiar with the lighted display on the front panel of the LigaSure™ generator. There are two things to pay particular attention to:

- The light below the LigaSure™ instrument plug receptacle, on the left-hand side of the unit:

When a LigaSure™ single-use instrument is properly plugged in, the light should change from **red to green**. This light should remain green at all times during the procedure to ensure proper sealing output. If at any time the instrument plug becomes improperly seated, or is not properly recognized causing the sealing cycle to be interrupted, the light will turn **red** and sealing output will cease.

- The green bar setting on the left-hand side of the unit:

This bar setting should be set to **2 or 3 green bars**: use 2 for smaller tissue volume, and 3 for larger tissue volume.

2. Familiarize yourself with the three different tones emitted by the generator:

- A long, constant tone to indicate that sealing energy is being applied:

Depending on the size of the tissue being sealed, this seal tone can sound for between 4-10 seconds.

- Following the seal tone, there will be a short "beep" indicating that a sealing cycle is complete. **Unless you hear the "beep," the sealing cycle is not complete.** If the surgeon stops activating during the sealing cycle before the "beep" sounds, activate the instrument again until the "beep" sounds.

- A regrasp alarm tone signaling that the sealing cycle has stopped:

This can result from improper conditions such as foreign objects in the jaws (clips, staples), too much fluid in the surgical site, or excessively thin tissue in the jaws of the instrument. If this alarm sounds, reapply the sealing power by reactivating the instrument and repeating the entire sealing cycle until the "beep" sounds, indicating the sealing cycle is complete.

3. Be alert to the patient conditions that can affect hemostasis:

- Age and select co-morbidities (cancer, coronary artery disease, etc.) have a deleterious effect on the healing process and can as a result degrade the performance of both mechanical and energy-based vascular occlusion methods.
- Use caution during surgical cases in which patients exhibit certain types of vascular pathology (atherosclerosis, aneurysmal vessels, irradiated tissue, etc.); for best results apply jaws to an area of unaffected vasculature.
- Do not attempt to seal vessels, lymphatics, or tissue bundles greater than 7mm in diameter.

4. Minimize tissue sticking to the jaws of the instruments. Excessive sticking can lead to tearing of tissue after sealing and can interfere with the proper function of the instrument. The best ways to minimize sticking are:

- Keep the jaws of the instrument clean at all times. Jaws have a metallic finish that should be visible after each seal. If the jaws become dirty, simply wipe them clean with a moist gauze. Do not use scratch pads.
- Clean the instrument more frequently if working in a bloody field.
- If consistent sticking is encountered, decrease the bar setting.
- Never re-use, reprocess, or resterilize single-use LigaSure™ instruments. This can damage the surface of the jaws and lead to improper performance.

5. Be familiar with the specific functions of each LigaSure™ instrument. There are a variety of different open and laparoscopic LigaSure™ instruments, but they all have a few things in common that maximize their performance:

- Fully ratchet the handle of each instrument. Every LigaSure™ instrument makes an audible and tactile “click” when properly ratcheted. **If energy is applied when the jaws of the instrument are not fully ratcheted, proper sealing may not be achieved.**
- Do not overload the jaws of the LigaSure™ instrument. The sealing surface consists of flat metal plates that compress tissue while energy is applied. Overloading the jaws may push tissue into the jaw hinge where it may not be properly sealed.



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1-800-255-VLAB (8522) x2005

Valleylab.ClinicalHotline@TycoHealthcare.com

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