



Hemostats 101: Understanding One of the Most Common Surgical Instruments



BY RICK SCHULTZ

The hemostat is one of the most common instruments in a surgical set. The naming of each hemostat is based on the jaw configuration and the distal tip design.

Hemostats have three functions in surgery. Typically, hemostats are used for clamping blood vessels to control bleeding. They are also commonly used to grasp and secure tissue and superficial fascia during a surgical procedure. Thirdly, they are excellent tools for

exposing, exploring, and visualizing the deeper areas of a surgical site.

The most common hemostats (See Figure 1) used in the majority of surgical sets are:

- Hartman forcep – 3 ½”
- Halsted forcep – 5”
- Kelly forcep – 5 ½”
- Crile forcep – 5 ½”
- Rochester-Pean forcep – 6 ¼”
- Rochester-Ochsner forcep, 1x2 teeth – 6 ¼”
- Allis forcep, 4x5 teeth – 6”

Note: Hemostats should never be used to clamp tubes. Repeated over-clamping causes the box lock (hinge) to crack, which is a patient safety issue. A tube occluding clamp is the appropriate instrument used to clamp tubes because they are designed for this exact purpose (See Figure 2).

The hinged area of a hemostat is called the box lock and is located where the two shanks meet (See Figure 3).

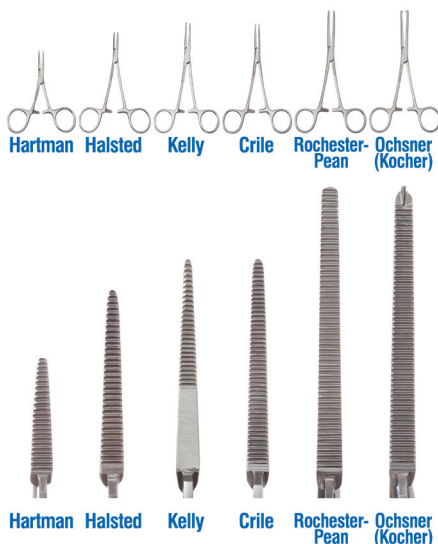


Figure 1

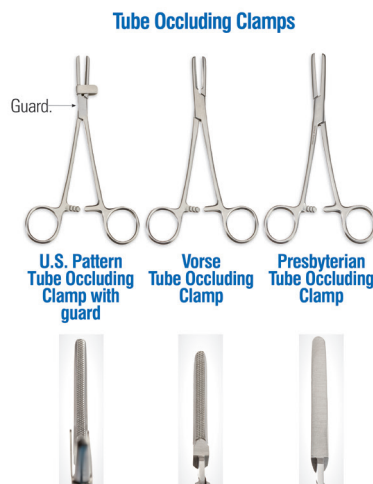


Figure 2

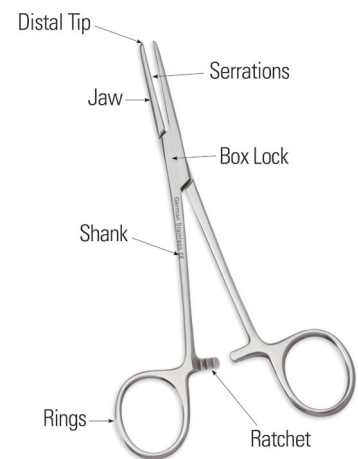


Figure 3



The ring handles are generally equipped with a ratcheted locking mechanism to hold the jaws in place during surgery. Depending on the instrument design, hemostats can also have different sizes and number of ratchets. These ratchets between the ring handles allow the surgeon to keep the jaws closed to varying pressures. For example, a Crile hemostat, Peers towel clamp and DeBakey forcep all have different numbers of ratchets/teeth.

The jaws of a hemostat can be straight, curved or angled. They come in a variety of lengths and can be used for many surgical applications. For example, Mosquito hemostats are used to clamp small blood vessels, while Kelly hemostats can clamp larger vessels due to the slightly larger jaw.

The most common hemostat is a straight-jawed hemostat. Finer work in a small surgical site is often best served by a smaller, curved jawed hemostat with fine, serrated jaws (although not all hemostats have teeth). Some hemostats have fully serrated jaws and others have half-serrated jaws. They may look the same, but they are different instruments and should not be substituted. Even though both the Kelly and the Crile hemostats are both 5 1/2' long, the Kelly hemostat has half-serrated jaws, while the Crile has fully serrated jaws. The two serve different purposes.

When cleaning hemostats, ratchets should be left in the open position, postoperatively, to allow anti-drying agents, such as moisturizing/enzymatic, to be effective. Ratchets must also be left open during sterilization to allow proper steam penetration and prevent cracking. Leaving the ratchets open also allows further inspection of the box lock for blood, tissue and cracks. The box lock is the most difficult area to clean, so this area should be carefully inspected.

As with all surgical instruments,

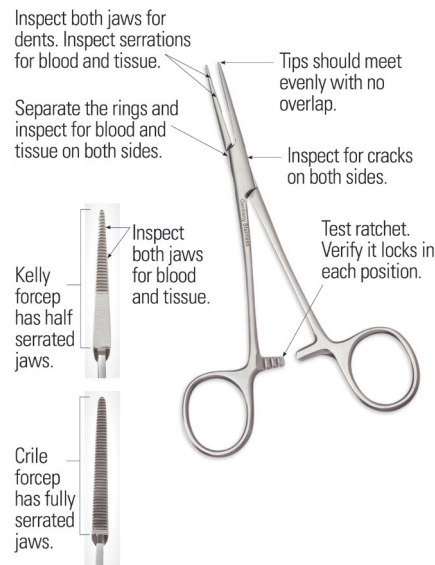


Figure 4

it is critical that hemostats are tested and inspected for blood and cracks. An important part of every Sterile Processing (SP) professional's job is to ensure all surgical instruments are in top condition prior to surgery by performing regularly scheduled maintenance and inspection. In addition, SP professionals should always inspect all instruments while preparing a surgical set prior to sterilization.

If, upon inspection, the jaws of a hemostat are out of alignment and do not meet at the distal tip when closed, the instrument should not be used. This issue is repairable, and the instrument should be immediately removed from service to be repaired.

Hemostat inspection should begin at the distal tips, with the rings separated.

The jaws (serrations) should be inspected for blood and then the box lock should be inspected for blood and cracks (See Figure 4).

The ratchet should be tested by slowly locking the hemostat in each position. A second test (See Figure 5) is to lock the

Ratchet Testing

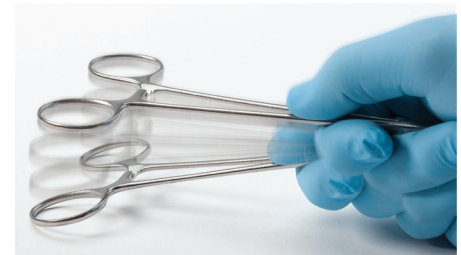


Figure 5

instrument on the first ratchet and gently tap the rings on a flat work surface (not the palm of your hand). If, after three or four taps, the ratchet holds, flip the instrument over and repeat the test. If the ratchet springs open during either test, the instrument should be sent out for repair.

If, upon inspection, the hemostat is cracked near the hinged area/box lock, it should be removed from service (See Figure 6). Most commonly, cracks occur from over-clamping or sterilizing with ratchets closed. These cracks should never be welded or repaired, as welding will result in an unstable instrument that may crack/rust and cause patient safety issues. The instrument should be sent out for warranty replacement or be replaced.

Cracked Box Lock



Figure 6



Q Between our Operating Room and Sterile Processing, we continually have communication problems surrounding endoscopes. Is it true that the word “endoscope” is too general? I was taught they should be called “rigid endoscope,” “flexible endoscope” or “semi-rigid endoscope.” Is this correct terminology?

A Indeed, referencing endoscopes as a general term is very unclear and confusing. The proper language is:

- **Rigid endoscope** (laparoscope; arthroscope; ear, nose and throat scope).
- **Semi-rigid endoscope** (ureteroscope)
- **Flexible endoscope** (gastric scope, colonoscope)



RICK SCHULTZ, the Instrument Whisperer™, is an author, inventor and lecturer, and the retired Chief Executive Officer of Spectrum Surgical Instruments Corp. He served as contributing editor of IAHCSSM's Central Service Technical Manual (Fifth, Sixth, Seventh, Eighth Editions). Rick authored the textbooks *Inspecting Surgical Instruments: An Illustrated Guide* and *The World of Surgical Instruments: The Definitive Inspection Textbook*, which was released in June 2018. Schultz was named IAHCSSM's Educator of the Year in 2002, and in 2006, was named American Hospital Association Educator of the Year. In 2007, he was named by Healthcare Purchasing News as one of the 30 Most Influential People in Healthcare Sterile Processing. Schultz currently provides educational lectures to Central Service professionals at IAHCSSM's annual conferences and conducts operating room personnel lectures across the country.