



How to Inspect and Test Cardiac Instruments



BY RICK SCHULTZ

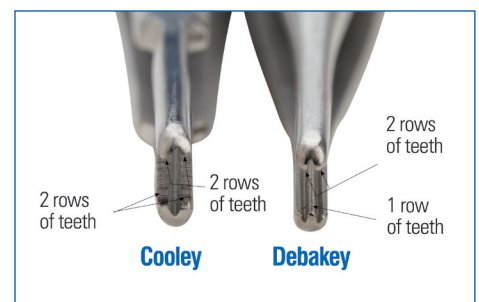
Cardiovascular instruments primarily are atraumatic (meaning no trauma), thereby allowing gentle and safe grasping of vessels, tissue and organs. The working portion of cardiac clamps and forceps contain atraumatic serrations, which must be inspected due to the intricate serrations where blood could accumulate and dry.



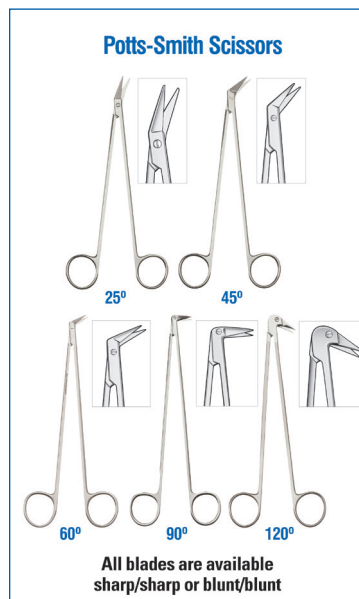
Commonly, cardiac instruments include scissors, clamps, forceps, graspers, needle holders and retractors.

Let's start with cardiac scissors, which are tested on yellow scissor test material. Cardiac scissors need to be tested frequently (weekly) due to the precision cutting and delicacy of the surgery. These specialty scissors are spring handled or ring handled and range from 4" to 7" length; however, all are tested on yellow scissor

test material. A popular cardiac scissor is the Potts-Smith scissor; it is important that the correct angle and length of the scissor match the count sheet.



Vascular clamps are manufactured with various shapes and angles, such as straight, curved, angled and double curved. The majority of vascular clamps were influenced/designed by U.S. surgeons Michael DeBakey and Denton Cooley. Both of these surgeons designed specific shapes and specific jaw serrations.



Cooley-Derra Vascular Clamp

Tips should meet evenly with no overlap.

Verify jaws interfit.

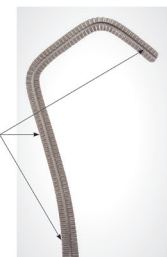
Separate the rings. Inspect for blood and tissue on both sides.

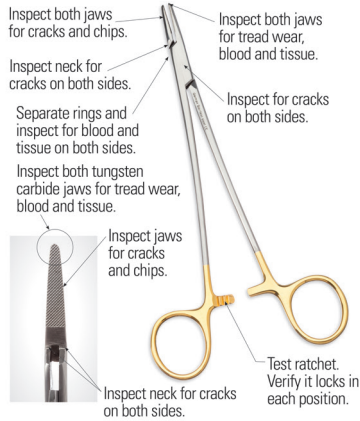
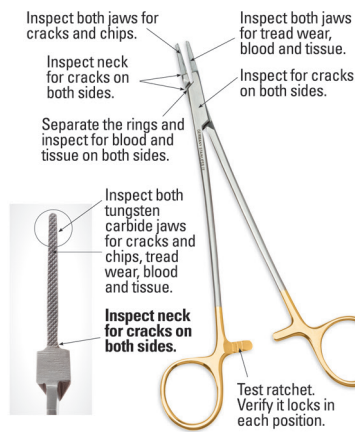
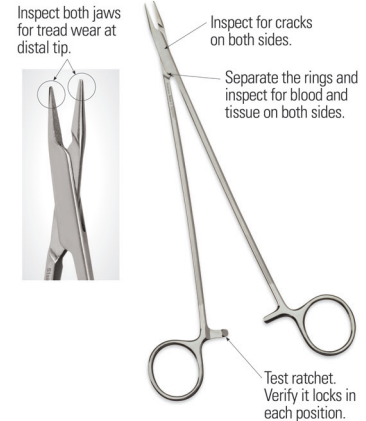
Inspect for cracks on both sides.

Test ratchet. Verify it locks in each position.

Inspect serrations on both jaws for blood and tissue.

Inspect all serrations and groove for blood and tissue.



**Crile-Wood Needle Holder,
Tungsten Carbide Jaws****Ryder Needle Holder,
Tungsten Carbide Jaws****DeBakey Needle Holder, Diamond Dust**

In simple terms, the Cooley forcep has 2 x 2 teeth (two rows of serrations) and the DeBakey forcep has 1 x 2 teeth (one row of serrations interfitting into two rows of serrations).

Inspection of vascular clamps starts at the distal jaw; this is done by closely inspecting the serrations. Also, it is important to inspect hinge areas for blood and tissue, and for cracks on both sides of the hinge area.

If the serrations of a DeBakey or Cooley forcep generate complaints from the surgeon, there is a test for atraumatic serration performance:

Test material: One thickness of white tissue paper.


Test: Clamp the jaws onto the white tissue paper, fully closing the ratchets for two to five seconds.

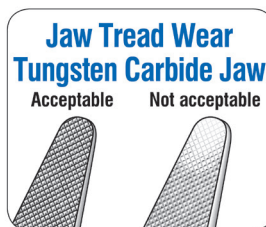
Test results: Unclamp and inspect the tissue paper for serrations on

the tissue paper. There should be a defined imprint of serrations, but no perforations of the tissue paper.

Needle holders used in cardiac surgery are primarily Crile Wood, Ryder and DeBakey Diamond Dust.

The jaws of these instruments are usually tungsten carbide serrations; however, occasionally, a surgeon may request smooth jaw tungsten carbide.

Diamond dust jaws must be inspected with magnification to determine if the fine, agitated serrations are worn. 



Q I am responsible for sending out repairs, and I recently visited the repair vehicle. To my surprise, the vehicle was very dirty and dusty. Should I be concerned about these conditions?

A Yes! The company and repair team lack standards and seemingly fail to realize these are medical devices. Any presence of dirt and dust is unacceptable! Take photos with your phone and then promptly schedule a meeting with the management of the repair company.



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 IAHCSMM'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 IAHCSMM'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 IAHCSMM's annual conferences and conducts operating room personnel lectures across the country.