2024



FINE SURGICAL INSTRUMENTS FOR RESEARCH™



#### Markus Gawenda Managing Partner

# LETTER FROM THE MANAGING PARTNER

# To our family of valued customers, associates, and business partners,

I am always reinvigorated by the release of our new catalog, as it allows us the opportunity to give appreciation to all who are integral parts of Fine Science Tools. This is also a great time for reflection and setting our sights on what is to come in 2024, an exciting year where we will be celebrating our 50th Anniversary! The journey has been outstanding and our dedication to service and support has propelled us from a very humble beginning to where we are now and where we will go in the future. It remains a pleasure to work closely with such inspiring and talented customers who are devoted to their contributions in science for all of these years and we look forward to serving you for many more years to come. FST has remained steadfast in our assurance to supplying quality instrumentation worldwide to an array of professionals and students in the Biomedical Science and Medical Device Technology industries. It is our unrelenting commitment to quality that is the hallmark of our company. Whether it is innovating new instruments to perfectly meet your exact needs or our teams finding new applications for existing FST instruments, our best information comes from you.

I introduce to you this year's catalog theme, Bubbles illustrating the delicate and precise by nature forms — characteristics which also describe our surgical instruments. A bubble is a microcosm where each individual element bends toward fulfilling its purpose with the whole, similar to our FST teams across the globe.

Resembling the designs of our instruments, bubbles appear simple but are complex encapsulation of elements that are fascinating to both children and adults with their beautiful shapes and colors. The lustrous appearance of bubbles and FST instruments alike catches the attention and curiosity of many.

In an effort to better serve our customers at the highest level and continue to offer our unwavering support, we are optimizing our sales structure and one of our first steps will be shifting operations from Canada to our devoted teams in the US and European offices. While change is inevitable there will always be a constant with our 100% satisfaction guarantee. We have formulated a smooth transition plan, which we can ensure will be seamless and considerate to our customers worldwide.

On behalf of all of Fine Science Tools I would like to thank you for your incredible support and your belief and trust in us to provide high quality surgical instruments to aid in your advancements and breakthroughs in science. Our achievements and longevity would not have been possible without your continued patronage. Fine Science Tools remains committed to being your partner in all aspects of your scientific developments and look forward to continuing our relationship with you for another 50+ years.

Thank you again for your continued support and loyalty.

Markus Gawenda

M. funda

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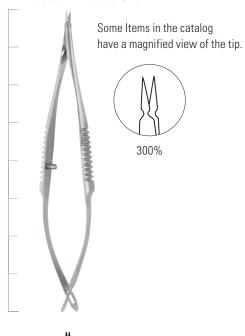
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# **Catalog Features**

#### **CATALOG FEATURES**

To provide you with our support regarding your decision in finding the right instruments for your purpose, the product feature details are explained below.

Most Items in the catalog are shown in actual Size.



Most Items in the catalog have a illustrated view of the tip.

Detailed Item specifications

Sharp/Sharp length: 8 cm Cutting edge: 2 mm Tip Ø: 0.05 mm No. 15000-03

Straight

#### **ICONS**:



Fine Science Tools has noted which items are most frequently purchased for use ina variety of surgical procedures. To find our most popular items, look for the "most popular" icon throughout the catalog.



The tips have micro serrations to ensure a better grip on tissue or other materials.



These items are not suitable for an autoclave but can be sterilized by a different method. For example: hot bead sterilization, gas sterilization, plasma sterilization or hot air sterilization. Please contact us to receive more information regarding the best preferred method for your instruments.



Fine Science Tools is proud to offer a large selection of left-handed surgical instruments to the research community. To find our lefthanded instruments in this catalog, look for the "left-handed" icon on the pages below.

Scissors: pages 33, 45 / Hemostatic Forceps: page 113 Needle Holders: pages 145 - 146 / Ligation Aid: page 125



FST features a selection of scissors with larger than normal finger loops. Most of these loops are easily adjustable to fit larger fingers more comfortably. To find our large loop scissors please look for the "large loop" icon on the pages below.

Scissors: pages 35, 44 and 47



Our yearly selection of new instruments is based on a careful study and knowledge of our customer needs, as well as listening to their requests.

# **WE PROUDLY STOCK**



Fine Science Tools offers a wide selection of the latest and most popular Dumont forceps. Hand crafted in Switzerland for more than a century, these forceps are known for their consistent and uncompromised fineness.

Dumont forceps come in a wide array of styles and alloys. Below you will find detailed descriptions to help guide you in choosing the right Dumont forceps best suited for your needs.

### FINDING THE DUMONT FORCEPS BEST SUITED FOR YOUR NEEDS:

Alloys	Hardness	Magnetic	Temperature resistance	Autoclavable	Advantages
Titanium	Least Hard	No	Up to 430° C	Yes	Resistant to corrosion from nitric acid, chloride, and salt water. Titanium is 40% lighter than stainless steel.
Dumoxel	Hard	No	400° C	Yes	The most popular alloy available for Dumont forceps offers the best resistance to corrosion, sulphuric environments, hydrochloric acids, and all other mineral and organic acids.
lnox	Harder	Yes	400° C	Yes	Available for most Dumont forceps. Contains chromium added to carbon steel, which results in some loss of hardness but offers good stainless qualities and resistance to corrosion.
Dumostar	Harder	No	500° C	Yes	More durable and corrosion resistant than the best stainless steels. Highly resistant to mineral and organic acids, and salt water. Dumostar lasts an average of four times longer than Dumoxel and lnox. Most cost effective alloy for laboratory use.
Carbon	Hardest	Yes	N/A	No	Extremely hard; ensuring strong tips. Easily stains and rusts without proper care. Carbon cannot be immersed in a water bath or sterilized.

#### **Tip profiles:** Dimensions vary. See each style for specific dimensions (width x thickness).

Standard	Made for high precision and consistently precise work under a microscope.
Biology	Twice as fine as "Standard Tips." Especially produced for high precision laboratory work under the microscope.
Super Fine Tips	Four times finer than the "Standard Tips." These tips are extremely delicate for the finest work under the microscope.  Extra care is needed for these tips as they are very fragile.
	Extra care is needed for these tips as they are very magne.

#### **Styles**

-	
#2	Straight forceps with wide yet fine tips, referred to as Mouse Laminectomy Forceps because of their popularity in breaking off delicate bone from mouse skulls.
#2AP	Epoxy coated with flat wide blunt tips.
#3	Long straight forceps with coarse tips. Popular in low magnification procedures.
#3C	Shorter version of #3.
#4	Similar to the #5 but with broader shanks and stronger tips.
#5	Most popular style of Dumont straight forceps with fine tips which come in several styles.
#55	Similar to the #5 but with lighter shanks, giving the forceps a lighter spring action.
#5CO	Similar to the #55 but with even finer shanks producing the lightest spring action and longest meeting surface of any Dumont style.
#5L	Medical #5 forceps with slide sleeve for a secure hold and retention.
#5SF	The finest tips ever produced by Dumont.

#5XL	Extra Long #5 forceps.
#5/45	Tips angled at 45°.
#5/45C	Designed to pick up cover slips from multi-well plates.
#5/90	Tips angled at 90°.
#5AC	Self-closing Anti-Capillary forceps.
#6	Sharply angled, broad tips.
#7	Most popular style of Dumont curved forceps with fine tips which come in several styles.
#7B	Curved serrated tips.
AA	Strong broad tips.
М	Mini forceps.
Medical	Denotes distinctive ribbed handle to maximize grip.
SS	Long and narrow shanks with thin tips.
WA	One piece design with no soldering grooves allows the forceps to be thoroughly and easily cleaned preventing biofilm residue.

# **Timeline**



#### **FST SINCE 1974**

For nearly 50 years, Fine Science Tools has been the leading distributor of precision surgical and microsurgical instruments, as well as laboratory accessories with offices in Foster City (USA) and Heidelberg (Germany) supporting and serving customers across the globe.

# 2009

FST Catalog Cover wins 1st Showcase of Print and Design Excellence award. Since 2009, FST catalog covers and print Ads have won over 22 awards and are well know within the research community.

# 1974

FST established by Hans Gawenda in North Vancouver B.C., Canada.

# 1993

Set up European office in Heidelberg, Germany.

# 2003

Deployed first website to make online ordering hassle-free















# 1984

Opened a business office in Foster City, California, near San Francisco.

## 1996

FST invents first and only available 0.5mm Rongeur

# 1999

25th Anniversary of FST

# 2019

Markus Gawenda joins the company US office in Foster City, California relocated and expanded.

2024

50th Anniversary of FST

# 2023

FST expands workshop in Germany

# 2014

FST wins Highest Attention-Getting Ads in Nature and Lab Animal Magazines.











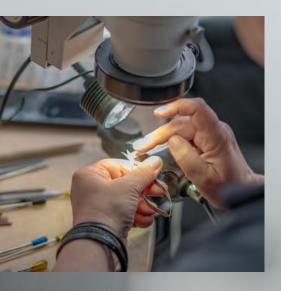
2021

FST reaches 1.000 available products

# 2018

Launched redesigned website with zoom feature and multiple languages for a more immersive product experience.

# **Handcrafted**



#### PRECISION THAT MAKES A MARK

Our surgical mechanics refine and perfect instruments in FST's very own workshop, this is a step that only we take in this form. This is essential for the precision and quality of each and every one of our products.

For example, our Friedman-Pearson rongeurs with tip diameters of 0.5 or 0.7 mm, both are unique in the world. Also, our spring scissors

have established themselves in the research industry and are second to none in terms of fineness.

The result: a level of quality that makes its mark - and to which we have now dedicated our own. Our new symbol "Hand-Crafted" stands for 100% guaranteed craftsmanship and instruments you can rely on in any situation.





#### **CUSTOM DESIGN**

If you have ever thought about how nice it would be to use a personalized, unique instrument, you should contact our custom design service as soon as possible.

We have the capabilities to manufacture any product to your specific requirements or to customize existing products to make them perfect for your application.

#### **FINE SCIENCE TOOLS SERVICE**



Over the years we have built up a network of partners and collaborations with well-known institutions and companies. As a result, we also offer application-specific instrument kits including complementary items from our partners.

If you are interested or have any questions, please give us a call at one of our offices.

#### **REPAIR SERVICE**

In our very own workshop in Heidelberg, Germany we not only manufacture and customize specific instruments according to customer requirements, but also offer a repair service for all of our products.



# Satisfaction Guarantee

### **QUALITY CONTROL**

The high quality of Fine Science Tools surgical and microsurgical instruments is the result of our relentless attention to detail. Almost every instrument we sell is manufactured by skilled European craftsmen, designed to exacting specifications made from the finest German stainless steel alloys, and forged from the strongest, lightest materials available, and tested to ensure precision performance and ergonomics.

We are dedicated to quality control, with technicians in our German office inspecting most

FST instruments. Aside from checking instrument dimensions and specifications, we thoroughly inspect tip sharpness, cutting edges, springs, joints, and other various components. Only after passing our detailed inspections, instruments are approved and sealed with our "FST Inspected" sticker

We are proud to guarantee all of our products with your 100% satisfaction. If, for any reason, you are not completely satisfied with your purchase, you may return it for a full refund.

# **100% SATISFACTION GUARANTEE**

"If, for any reason, you are not completely satisfied with your purchase you may return it for a full refund."

Hans Gawenda, Founder, Fine Science Tools Inc.

#### **SCISSORS TEST**

# Does paying more for a pair of scissors really buy more value and a longer cutting life?

The picture below shows our cutting test for ring scissors based on the standards and specifications of surgical instruments in our office in Heidelberg. Each pair of scissors must perform a smooth cut without tearing or fraying the material, specifically at the fine tips. In addition, a specialized long-term test is done to identify the longevity of other featured alloys and cutting edges, tungsten carbide and ToughCut®. In this test the scissors will repeatedly cut through a continuous feed of cotton cloth and a counter keeps track of the number of cuts made

to evaluate when the scissors begin to show a decrease in cutting quality.

The results showcase the addition of added features dramatically increases the cutting life of the scissors. Most notably, the cutting life is more than doubled with the addition of ToughCut® blades and over six times longer with our CeramaCut® feature.

See the chart below for a comparison of four different scissors sold by FST.



The cutting life is more than doubled with the addition of **ToughCut** blades to stainless steel, and over six times longer with **CeramaCut** blades.





**Tungsten Carbide**Lasts longer than
stainless steel by: **1.9x** 





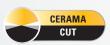
Stainless Steel with ToughCut Lasts longer than stainless steel by: 2.3x





**Tungsten Carbide with ToughCut**Lasts longer than
stainless steel by: **4.1x** 





CeramaCut (Ceramic Coated Tungsten Carbide with ToughCut) Lasts longer than stainless steel by: 6.6x

# **Alloys & Materials**

There are various alloys and materials which are used to produce micro surgical instruments for research with each having certain properties that would be advantageous in particular environments or applications.

We will introduce theses alloys, describe their benefits and highlight unique tools for particular procedures that may be ergonomic and overall helpful for your studies and/or protocols.



#### ToughCut® Scissors

- Black handles
- Last approx. 2.3x longer than stainless steel
- One cutting edge has micro serrations to minimize tissue slippage
- One cutting edge has increased sharpness
- (cutting edge with a 30° instead of 15° angle)



#### **Tungsten Carbide Instruments**

- Golden handles (short gold plating)
- Last approx. 1.9x longer than stainless steel
- Is welded onto the cutting edges of scissors or tips of forceps and needles holders
- Available instruments: bone cutters, scissors, forceps, needles, needle holders, burrs





#### CeramaCut® Scissors

- Golden handles and black coating
- Last approx. 6.6x longer than stainless steel
- Cutting edges with Tungsten Carbide and Tough Cut plus ceramic coating
- Ceramic is one of the hardest materials on earth
- Reduced glare



#### Ceramic Instruments

- Ceramic coating
- Last approx. 2.3x longer than stainless steel
- Ceramic is one of the hardest materials on earth
- Reduced glare
- Available instruments: Dumont forceps and spring scissors



#### Tungsten Carbide & ToughCut® Scissors

- Golden handles (long gold plating)
- Last approx. 4.1x longer than stainless steel
- One cutting edge has micro serrations to minimize tissue slippage
- One cutting edge has increased sharpness (cutting edge with a 30° instead of 15° angle)



#### **Titanium Instruments**

- Approx. 40% lighter than stainless steel
- Softer alloy than stainless steel
- Corrosion resistance (cannot rust)
- Non-Magnetic
- High temperature resistance up to 440°C / 824°F
- Available instruments: scissors, forceps, probes, hooks, spatula, vascular clamps





Proper care of your surgical instruments will improve their longevity and function. Below are different cleaning, sterilization, and maintenance processes to guide you through your techniques.

#### **GENERAL**

Guidelines to extend the life of your surgical instruments.

Clean and thoroughly dry your instruments as soon as possible after each use, paying special attention to joints, hinges, and anywhere there is metal to metal contact.

Handle your instruments delicately and with care.

Use your instruments for their intended purpose.

Store your instruments with tip protectors, and always place them so that they do not touch each other.



#### **CLEANING**

Fine surgical instruments should be cleaned immediately after use. Blood or saline solutions left on instruments for any length of time can quickly start corrosive action. Time, temperature, and agitation play important roles in the cleaning process. Time affects the efficiency of cleaning solutions as most are effective after a certain time period. Higher temperature cleaning solutions result in better cleaning. During manual or ultrasonic cleaning it is helpful to loosen any surgical reminisce. Before any of the below procedures, rinse your instruments under warm running water to remove all blood and tissue. Instruments can be cleaned manually or ultrasonically, but always:

Use a neutral pH (pH 7) cleaning solution.

Clean instruments in the open position to ensure a thorough and effective cleaning process.

Use soft textile or paper cloths, soft plastic brushes made of nylon, or water spray guns.

Do NOT use steel wool, wire brushes, or scouring pads as these are abrasive to the instruments.



### **MANUAL CLEANING**



Make sure all instruments are visibly clean and free from stains, wiping them carefully to remove all blood and tissue matter.



Rinse instruments thoroughly with distilled water, paying close attention to joints and hinges as these areas can accumulate unwanted material.



Air dry your instruments completely and use a can of compressed air to blow out any water at the joints and hinges. Then store them only in clean and dry environments.



#### **ULTRASONIC CLEANING**

Ultrasonic cleaning is the most effective cleaning method. The vibrating sound waves create micron-sized bubbles in the solution that grow with the alternating pressure. When the bubbles reach a particular size, they collapse creating a force that dislodges dirt and particles, even in the smallest of crevices.



NOT recommended for delicate and micro instruments.



Follow the manufacturer's guidelines for specific instructions and cleaning cycle times.



Instruments should be processed for the full recommended cycle time.

Place instruments in the open position in the ultrasonic cleaner.

- Do NOT allow instruments with sharp blades to touch other instruments.
- Do NOT place dissimilar metals (stainless, copper, chrome plated) in the same cleaning cycle.
- Make sure all instruments are completely submerged. After the ultrasonic cleaning cycle is complete, rinse instruments thoroughly to remove all
- ultrasonic cleaning solution.
- Dry instruments thoroughly with a clean towel.
  - Use a spray lubricant in the hinges to minimize the risk of corrosion and maintain functionality.



#### **STERILIZATION**

It is important that instruments are free from all traces of organic or other matter prior to sterilization.

### STEAM STERILIZATION/AUTOCLAVING

The autoclave process utilizes moist heat (or steam) under pressure for sterilization. The steam used must be from distilled water and free of all impurities.



Lubricate all instruments that have any metal to metal interaction such as; scissors, rongeurs, needle holders, hemostats, and retractors. Do NOT use WD-40 or other industrial lubricants.

Instruments may be autoclaved individually or in sets.



- Individual instruments: Disposable wraps or sterilization pouches are ideal. Make sure the pouch size is sufficient for the instrument to be in an open (unlocked) position.
- Instrument sets: Open and unlock all instruments. Place the heavier instruments on the bottom of the set when two layers are needed.
- Do NOT lock instruments during autoclaving. This will prevent the steam from reaching and sterilizing the metal to metal surfaces, and heat expansion during autoclaving can cause cracks in the hinge areas.
- Do NOT over load the autoclave chamber as this may hinder steam penetration.
- Place a towel on the bottom of the pan to absorb excess moisture during autoclaving. Make sure the towel has no detergent residue and is pH neutral if immersed in water.
- At the end of the autoclave cycle (before the drying cycle) unlock the autoclave door and open it slightly. Run the dry cycle for the recommended time period by the autoclave manufacturer.

Please note: If the autoclave door is fully opened before the drying cycle, cold air will rush into the chamber, which can cause condensation on the instruments. This will result in water stains on the instruments.





#### **HOT BEAD STERILIZATION**

Recommended for speed and convenience when instrument tips or blade sterilization is required. The Hot Bead Sterilizer does not use dangerous gases, flames, or chemicals. Highlights:



Bench top set up.



Only 20 seconds of contact required to ensure your instruments are free of pathogens and



Beads reach temperature of 240° - 270°C (464° - 518°F) within 15-20 minutes heating time.

Please see page 172 - 173 for more information on the FST Hot Bead Sterilizers.



## **ETHYLENE OXIDE (ETO) STERILIZATION**

This method is recommended for instruments that will not tolerate high temperatures or moisture (e.g., catheters, cannulae, etc.). This is a process consisting of 4 primary variables; gas concentration, humidity, temperature and time.

Sterilization pouches and wraps available, see pages 171, 174 and 176 - 178.



#### **STORAGE**

Surgical instruments should be properly stored in a clean and dry environment. It is highly recommended to use tip protectors and instrument cases to avoid possible damage to your instruments.

Instrument tip protectors are available, see page 180. Instrument cases are available, see pages 178 – 180



## **OXIDATION (RUST)**

All FST stainless steel surgical instruments are manufactured from medical grade stainless steel under strict European standards. It is very important to properly take care of your instruments to extend their lifespan.

Although stainless steel is corrosive resistant, it can still rust or stain if handled improperly. Under unfavorable conditions instruments may oxidize because stainless steel that is exposed to physical, thermal, or chemical manipulations may lose some of its stainless properties.

# SCISSORS, BONE INSTRUMENTS, KNIVES & SCALPELS

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#### **Micro Vannas**

These Vannas-style spring scissors have the smallest blades ever produced. They are ideal where space is restricted and where absolute precision is demanded.

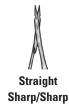


#### **Micro Vannas**

The short taper is ideal for small, precise cuts.







8 cm Cutting edge: 2.5 mm Tip Ø: 0.05 mm

No. 15000-08



#### Straight Sharp/Sharp

 $8\,\mathrm{cm}$ Cutting edge: 2 mm Tip Ø: 0.05 mm

No. 15000-03



#### Curved Sharp/Sharp

8 cm Cutting edge: 2 mm Tip Ø: 0.05 mm

No. 15000-04



#### Curved Sharp/Sharp

8 cm Cutting edge: 2.5 mm Tip Ø: 0.05 mm

No. 15001-08



#### Angled to side Sharp/Sharp

 $8\,\mathrm{cm}$ Cutting edge: 2.5 mm Tip Ø: 0.05 mm

No. 15002-08

#### **Micro Vannas**

The long taper is ideal for cutting vessel walls or when a longer cutting edge is needed.



15000-00





Straight Sharp/Sharp

 $8\,\mathrm{cm}$ Cutting edge: 3 mm Tip Ø: 0.05 mm

No. 15000-00



Curved Sharp/Sharp

8 cm Cutting edge: 3 mm Tip Ø: 0.05 mm

No. 15000-10

#### Vannas-Tübingen







8.5 cm Cutting edge: 5 mm Tip Ø: 0.075 mm

No. 15003-08



Curved Sharp/Sharp

8.5 cm Cutting edge: 5 mm Tip Ø: 0.075 mm

No. 15004-08



Angled up

Sharp/Sharp

9.5 cm

Cutting edge: 5 mm

Tip Ø: 0.075 mm

### Angled to side Sharp/Sharp

8.5 cm Cutting edge: 5 mm Tip Ø: 0.075 mm

No. 15008-08

#### **Vannas Spring Scissors High Polished**

The highly polished surface makes the scissors more resistant to corrosion and easier to clean. It also prevents tissue from sticking on it while operating, it's also called non-sticky surface.





#### **Vannas Spring Scissors Round Handle**

The round handle allows an easy finger adjustment during the application. The hollow grind in the handle reduces the weight. The fine blades are tapered to give a better overview.







Straight
Sharp/Sharp

8.5 cm Cutting edge: 5 mm Tip Ø: 0.075 mm

No. 15903-08



Curved Sharp/Sharp

8.5 cm Cutting edge: 5 mm Tip Ø: 0.075 mm

No. 15904-08



Straight Sharp/Sharp

9 cm Cutting edge: 5 mm Tip Ø: 0.075 mm

No. 15403-08



Curved
Sharp/Sharp

9 cm Cutting edge: 5 mm Tip Ø: 0.075 mm

No. 15404-08

#### **Vannas Scissors with Microserrations**

Microserrated to minimize slippage.





### **Straight** Sharp/Sharp

8.5 cm Cutting edge: 7 mm Tip Ø: 0.1 mm

No. 15007-08



Straight Sharp/Sharp

 $8.5\,\mathrm{cm}$ Cutting edge: 5 mm Tip Ø: 0.1 mm

No. 15070-08



Curved Sharp/Sharp

8.5 cm Cutting edge: 5 mm Tip Ø: 0.1 mm

No. 15071-08

#### **Vannas**





Straight Sharp/Sharp

10.5 cm Cutting edge: 4 mm Tip Ø: 0.15 mm

No. 15018-10



Curved Sharp/Sharp

 $10.5\,cm$ Cutting edge: 4 mm Tip Ø: 0.15 mm

No. 15019-10

#### **Miniature Vannas**

Finished under high magnification, these tips are especially useful when incising vessel walls for catheter insertion.





Moria 9600



Straight Sharp/Sharp

 $8\,\mathrm{cm}$ Cutting edge: 5 mm Tip Ø: 0.1 mm

No. 15396-00

#### Moria 9601



Curved Sharp/Sharp

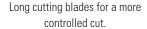
8 cm Cutting edge: 5 mm Tip Ø: 0.1 mm

No. 15396-01

#### **Titanium Vannas**

#### Cohan-Vannas

#### ToughCut® Spring Scissors















 $9.5\,\mathrm{cm}$ Cutting edge: 5 mm Tip Ø: 0.3 mm

Sharp/Sharp

No. 15610-08



**Straight** Sharp/Sharp

6 cm Cutting edge: 6 mm Tip Ø: 0.1 mm

No. 15000-02



Curved Sharp/Sharp

6.0 cm Cutting edge: 6 mm Tip Ø: 0.1 mm

No. 15000-01



Straight Sharp/Sharp

12.5 cm Cutting edge: 6 mm Tip Ø: 0.3 mm

No. 15124-12



Curved Sharp/Sharp

12.5 cm Cutting edge: 6 mm Tip Ø: 0.3 mm

No. 15123-12



Curved Sharp/Sharp

 $9.5\,\mathrm{cm}$ Cutting edge: 5 mm Tip Ø: 0.3 mm

No. 15615-08



Angled up Sharp/Sharp

9.5 cm Cutting edge: 5 mm Tip Ø: 0.3 mm

No. 15617-08



6 cm Cutting edge: 6 mm Tip Ø: 0.15 mm

No. 15000-12



6 cm Cutting edge: 6 mm Tip Ø: 0.15 mm

No. 15000-11

#### **Round Handled Vannas**

Round handles allow easy fingertip adjustments.

#### **Spring Scissors**

#### **Ceramic Coated Spring Scissors**









12.5 cm Cutting edge: 6 mm Tip Ø: 0.075 mm

Sharp/Sharp

No. 15400-12



Curved Sharp/Sharp

12.5 cm Cutting edge: 6 mm Tip Ø: 0.075 mm

No. 15401-12



Straight Sharp/Sharp

14 cm Cutting edge: 6 mm Tip Ø: 0.15 mm

No. 15020-15



Curved Sharp/Sharp

14 cm Cutting edge: 6 mm Tip Ø: 0.15 mm

No. 15021-15



Straight Sharp/Sharp

10 cm Cutting edge: 7 mm Tip Ø: 0.1 mm

No. 15750-11



Curved Sharp/Sharp

10 cm Cutting edge: 7 mm Tip Ø: 0.1 mm

No. 15751-11

Vannas-Wolff



sacrificing tip width.

Castroviejo











Moria MC52



Straight Sharp/Sharp

10 cm Cutting edge: 7 mm Tip Ø: 0.15 mm

No. 15370-52

Moria MC50



Curved Sharp/Sharp

10 cm Cutting edge: 7 mm Tip Ø: 0.15 mm

No. 15370-50



Straight Sharp/Sharp

8.5 cm Cutting edge: 8 mm Tip Ø: 0.1 mm

No. 15009-08



Angled to side Sharp/Sharp

10 cm Cutting edge: 10 mm Tip Ø: 0.125 mm

No. 15006-09

Dowell

#### Castroviejo with Ball Tip

Same as No. 15006-09 but with a ball tip to prevent piercing of underlying tissue.







Sharp/Sharp

10 cm Cutting edge: 8 mm Tip Ø: 0.15 mm

No. 15024-10



9 cm Cutting edge: 8 mm Tip Ø: 1.3 mm Ball

No. 15033-09



Straight Blunt/Blunt

10 cm Cutting edge: 8 mm Tip Ø: 0.3 mm

No. 15025-10



Curved Sharp/Sharp

10 cm Cutting edge: 8 mm Tip Ø: 0.15 mm

No. 15023-10





Straight Sharp/Sharp

11.5 cm Cutting edge: 10 mm Tip Ø: 0.1 mm

No. 15040-11



Angled up Sharp/Sharp

11.5 cm Cutting edge: 10 mm Tip Ø: 0.1 mm

No. 15042-11

#### Noyes

#### **Tungsten Carbide Noyes**

Castroviejo

Tungsten carbide cutting edges provide long lasting sharpness.











12 cm Cutting edge: 14 mm Tip Ø: 0.2 mm

Sharp/Sharp

No. 15012-12



Curved Sharp/Sharp

12 cm Cutting edge: 14 mm Tip Ø: 0.2 mm

No. 15011-12



Angled up Sharp/Sharp

12 cm Cutting edge: 14 mm Tip Ø: 0.2 mm

No. 15013-12



Straight Sharp/Sharp

12 cm Cutting edge: 14 mm Tip Ø: 0.275 mm

No. 15514-12



Curved Sharp/Sharp

10 cm Cutting edge: 10 mm Tip Ø: 0.2 mm

No. 15017-10

#### **Ceramic Coated Titanium Castroviejo**







Westcott

#### Fine Angled Spring Scissors

These spring scissors aid in cutting tissues from various angles.





Straight Sharp/Sharp

11 cm Cutting edge: 5 mm Tip Ø: 0.2 mm

No. 15650-11



Curved Sharp/Sharp

11 cm Cutting edge: 5 mm Tip Ø: 0.2 mm

No. 15651-11



Curved Sharp/Sharp

11 cm Cutting edge: 15 mm Tip Ø: 0.25 mm

No. 15015-11



Angled up Sharp/Sharp

9.5 cm Cutting edge: 2 mm Tip Ø: 0.1 mm

No. 15010-09



Angled up Sharp/Sharp

10 cm Cutting edge: 4 mm Tip Ø: 0.125 mm

No. 15010-10

#### Trident II

Special design with short handle and inner spring.



Very delicate blades.

#### **Long Handle Spring Scissors**











Angled up Sharp/Sharp

Cutting edge: 3 mm Tip Ø: 0.15 mm

No. 15371-92







10.5 cm

No. 15027-18





Straight Sharp/Sharp

Angled to side

Sharp/Sharp

8 cm

Cutting edge: 8 mm

Tip Ø: 0.2 mm

No. 15111-08

 $8\,\mathrm{cm}$ Cutting edge: 8 mm Tip Ø: 0.2 mm

No. 15110-08



#### **Micro Scissors**

With microserrations to minimize slippage.

# 300% 300% Straight Angled to side Sharp/Sharp Sharp/Sharp 14.5 cm 14.5 cm Cutting edge: 2.5 mm Cutting edge: 2.5 mm

Tip Ø: 0.175 mm

No. 15031-14

Tip Ø: 0.175 mm

No. 15030-14

#### **Micro Scissors**

The finest blades on spring scissors. Designed for ophthalmic surgery (vitrectomy). The spring handles are made of ribbed plastic to ensure a solid grip. **Autoclavable**.



#### **Ultra Fine Clipper Scissors II**

For microscopic dissections of soft and mucous tissue. The minute fineness of the blades allows clear visualization of the tissue being dissected.



#### Uses:

- Removing sheath of ganglia to access neurons in aplysia.
- Cutting single nerve axons in aplysia, mollusk and snail.
- Stripping fascia off arteries and muscles.
- Ultra fine brain tissue dissection.
- · Cutting of minute fiber optic strands.



10 cm Cutting edge: 1.5 - 2 mm Tip Ø: 0.05 - 0.08 mm Blade shape: Triangular 0.1 mm Blade thickness

No. 15300-00

#### **Biemer Scissors**

These scissors are designed to securely cut vessels without slipping.







8.5 cm Cutting edge: 4 mm Tip Ø: 2 mm

No. 15032-08



Straight Blunt/Blunt

13 cm Cutting edge: 2 mm Tip Ø: 2 mm

No. 15032-13

#### **Extre Fine Bonn**

Our finest iris scissors, best suited for microdissection under high magnification.







8.5 cm Cutting edge: 10 mm

No. 14084-08



Curved Sharp/Sharp

8.5 cm Cutting edge: 10 mm

No. 14085-08



Straight Sharp/Blunt

8.5 cm Cutting edge: 10 mm

No. 14083-08

#### Bonn

Highly polished.



#### ToughCut® Bonn-Strabismus

A fusion of two light and delicate iris scissors with ToughCut cutting edges.







Straight Sharp/Sharp

8.5 cm Cutting edge: 10 mm

No. 14184-09



Curved Sharp/Sharp

8.5 cm Cutting edge: 10 mm

No. 14185-09



Straight Blunt/Blunt

8.5 cm Cutting edge: 10 mm

No. 14084-09



Curved Blunt/Blunt

8.5 cm Cutting edge: 10 mm

No. 14085-09

#### **Hardened Fine Iris Scissors**

These scissors have an anti-reflective finish to reduce glare.



14090-09





9 cm

Cutting edge: 16 mm No. 14090-09

11 cm Cutting edge: 16 mm

No. 14090-11



Curved Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14091-09

11 cm Cutting edge: 16 mm

No. 14091-11

#### **Fine Iris Scissors**

Made from Martensitic stainless steel, combined with Molybdenum and Vanadium.





Cutting edge: 16 mm

No. 14094-11



Sharp/Sharp

10.5 cm Cutting edge: 16 mm

No. 14095-11

#### **Iris Scissors**

Delicate pattern.



14060-11





9 cm Cutting edge: 16 mm

No. 14060-09

10.5 cm Cutting edge: 16 mm

No. 14060-10

11.5 cm Cutting edge: 16 mm No. 14060-11

10.5 cm Cutting edge: 16 mm

Curved

Sharp/Sharp

9 cm

Cutting edge: 16 mm

No. 14061-09

No. 14061-10

11.5 cm Cutting edge: 16 mm No. 14061-11



**Curved to side** Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14062-09



10.5 cm Cutting edge: 16 mm

No. 14062-10



Angled to side

Sharp/Sharp

9 cm

Cutting edge: 16 mm

No. 14063-09



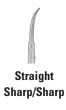






10.5 cm Cutting edge: 18 mm

No. 14160-10



10.5 cm

Cutting edge: 18 mm No. 14161-10

#### **Moria Iris Scissors**











Sharp/Sharp

12.5 cm Cutting edge: 10.5 mm

No. 14370-22



10.5 cm Cutting edge: 14 mm

No. 14370-23

#### **Extra Narrow Iris Scissors**

Extra narrow, delicate pattern. Very slim blades with gentle cutting action.







Straight Sharp/Sharp

10.5 cm Cutting edge: 16 mm

No. 14088-10

# **Largo Loops Scissors** LARGELOOP F- S-T 14040-10 Straight Curved Sharp/Sharp Sharp/Sharp 10 cm 10 cm 12 cm

Cutting edge: 16 mm

No. 14041-10

Cutting edge: 16 mm

No. 14040-10



Wagner



Cutting edge: 20 mm

No. 14068-12





12 cm Cutting edge: 20 mm No. 14070-12



# ToughCut®

# **Tungsten Carbide**





14058-09



Straight Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14058-09

11.5 cm Cutting edge: 16 mm

No. 14058-11



9 cm Cutting edge: 16 mm

No. 14059-09

11.5 cm Cutting edge: 16 mm

No. 14059-11





14568-12



Straight Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14568-09

11.5 cm Cutting edge: 16 mm

No. 14568-12



9 cm Cutting edge: 16 mm

No. 14569-09

11.5 cm Cutting edge: 16 mm

No. 14569-12



# ToughCut® and Tungsten Carbide





Straight Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14558-09

11.5 cm Cutting edge: 16 mm

No. 14558-11



9 cm Cutting edge: 16 mm

No. 14559-09

11.5 cm Cutting edge: 16 mm

No. 14559-11

### CeramaCut®

These ceramic-coated scissors are the cleanest cutting, longest lasting scissors ever produced. Utilizing the unique properties of a ceramic coating, they will last six times longer than tungsten carbide instruments and cut even better than ToughCut® scissors. The black, corrosion-resistant coating has a non-glare finish.





Straight Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14958-09

11.5 cm Cutting edge: 16 mm

No. 14958-11

Curved Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14959-09

44.5

11.5 cm Cutting edge: 16 mm

No. 14959-11

**Fine Scissors** Lexer-Baby







Straight Sharp/Blunt

10 cm Cutting edge: 17 mm

No. 14028-10



Curved Sharp/Blunt

10 cm Cutting edge: 17 mm

No. 14029-10



Cutting edge: 16 mm

No. 14078-10



10 cm Cutting edge: 16 mm

No. 14079-10

### **Strabismus**

# **Tungsten Carbide Strabismus**







9 cm Cutting edge: 12 mm

No. 14074-09

11.5 cm Cutting edge: 20 mm

No. 14074-11



Curved Blunt/Blunt

9 cm Cutting edge: 12 mm

No. 14075-09

11.5 cm Cutting edge: 20 mm

No. 14075-11





Straight Blunt/Blunt

9 cm Cutting edge: 12 mm

No. 14574-09

11 cm Cutting edge: 20 mm

No. 14574-11



Curved Blunt/Blunt

9 cm Cutting edge: 12 mm

No. 14575-09

11 cm Cutting edge: 20 mm

No. 14575-11

# Walton Stevens Tenotomy







9.5 cm Cutting edge: 10 mm

No. 14077-09



10.5 cm Cutting edge: 10 mm

No. 14077-10



11 cm Cutting edge: 13 mm

No. 14064-11



Curved Sharp/Sharp

11 cm Cutting edge: 13 mm

No. 14065-11



Straight Blunt/Blunt

11 cm Cutting edge: 13 mm

No. 14066-11



Curved Blunt/Blunt

11 cm Cutting edge: 13 mm

No. 14067-11

# LaGrange

One edge is serrated to minimize slippage of tissue during cutting. Curved handle helps when cutting from an awkward angle.



Transplant scissors with light and delicate pattern.

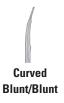






11.5 cm Cutting edge: 12 mm

No. 14173-12



12 cm Cutting edge: 16 mm

No. 14105-12

# **Dissector Scissors**

Slim blades for cutting tissue.



Similar to 14081-09, but with stronger blades for cutting fine bone.

# **Spencer Ligature**

Used for cutting stitches or suture.









10 cm Cutting edge: 6 mm

No. 14081-09



Angled to side Sharp/Sharp

 $10.5\,\mathrm{cm}$ Cutting edge: 8 mm

No. 14082-09



Sharp/Sharp

9 cm Cutting edge: 16 mm

No. 14076-09

# **Bonn Artery**

Iris scissors with one ball tip to prevent piercing of underlying tissue.



# **Tissue Separating Scissors**





9 cm Cutting edge: 10 mm 1.5 mm Ball Diameter

No. 14086-09



Straight Sharp/Ball tip

11.5 cm Cutting edge: 16 mm 1.5 mm Ball Diameter

No. 14080-11



11.5 cm Cutting edge: 16 mm

No. 14072-10

# Graefe **Adjustable Loops Fine Scissors** Kaye The finger loops can be enlarged to fit These scissors have semi-sharp outer almost any size. edges to better facilitate dissection. LARGELOOP LARGELOOP SERRATED



Angled up

Sharp/Sharp

10.5 cm

Cutting edge: 12 mm

No. 14037-10

Straight

**Blunt/Blunt** 

9.5 cm

Cutting edge: 8 mm

No. 14108-09

Straight

Sharp/Sharp

9.5 cm

Cutting edge: 8 mm

No. 14106-09

Curved

**Blunt/Blunt** 

10.5 cm

Cutting edge: 14 mm

No. 14171-10

### **Standard Pattern**

Our standard surgical scissors are recognized for these important features:

- Excellent feel and handling capability.
- Overall execution that marks them as fine examples of German craftsmanship.





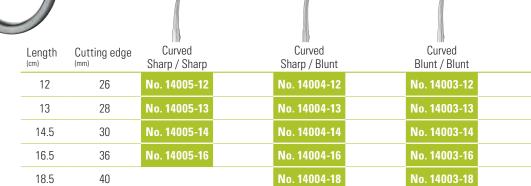
14001-12 - 14001-18

F-S-T 14001-14

14008-14



Length (cm)	Cutting edge (mm)	Straight Sharp / Blunt
14.5	30	No. 14008-14



No. 14003-20

20

44

# ToughCut® Standard Pattern







# Straight Sharp/Blunt

13 cm Cutting edge: 28 mm

No. 14054-13



Straight **Sharp/Blunt** 

17.5 cm Cutting edge: 42 mm

No. 14130-17

# **Tungsten Carbide Standard Pattern**





Straight Sharp/Sharp

14.5 cm Cutting edge: 34 mm

No. 14502-14



# Curved Sharp/Sharp

14.5 cm Cutting edge: 34 mm

No. 14505-14

# **Standard Pattern** with Serrations







Cutting edge: 34 mm

No. 14501-14



# Curved Sharp/Blunt

14.5 cm Cutting edge: 34 mm

No. 14504-14



**Sharp/Blunt** 

14 cm Cutting edge: 30 mm

No. 14007-14

# Standard Pattern with Large Finger Loops





# Tungsten Carbide Mini-Lister





### Lister

Excellent skin cutting scissors. Longer, blunt blade prevents damaging tissue underneath skin without losing the cutting line.







14.5 cm Cutting edge: 30 mm

No. 14101-14



Angled to side Blunt/Blunt

9 cm Cutting edge: 14 mm

No. 14531-09



Angled to side Blunt/Blunt

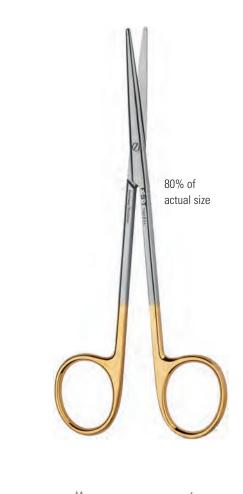
14 cm Cutting edge: 26 mm

No. 14131-14

### **Metzenbaum Baby**

### **Tungsten Carbide Metzenbaum Fino**







70% of

actual size

Cutting edge: 20 mm

No. 14019-13

14.5 cm Cutting edge: 22 mm

No. 14019-14

18 cm Cutting edge: 24 mm

No. 14019-18



14.5 cm Cutting edge: 22 mm

No. 14508-15 No. 14518-14

Straight

**Blunt/Blunt** 

14.5 cm

Cutting edge: 22 mm

18 cm Cutting edge: 24 mm

No. 14518-18

Curved **Ultra fine Blunt/ Blunt** 

14.5 cm Cutting edge: 22 mm

No. 14509-15

18 cm Cutting edge: 24 mm

No. 14519-18

Curved

Blunt/Blunt

14.5 cm

Cutting edge: 22 mm

No. 14519-14



Straight

Blunt/Blunt

13 cm

No. 14018-13

14.5 cm

Cutting edge: 22 mm

No. 14018-14

18 cm

Cutting edge: 24 mm

No. 14018-18



### Metzenbaum

# ToughCut® Metzenbaum





Straight Blunt/Blunt

14.5 cm Cutting edge: 22 mm

No. 14116-14

18 cm Cutting edge: 24 mm

No. 14116-18

Curved Blunt/Blunt

14.5 cm Cutting edge: 22 mm

No. 14117-14

18 cm Cutting edge: 24 mm

No. 14117-18



Cutting edge: 24 mm

No. 14016-18

Cutting edge: 24 mm

No. 14017-18

Mayo ToughCut® Mayo **Tungsten Carbide Mayo** TOUGH TUNGSTEN 14512-15 & 14512-17 0 80% of 80% of 80% of actual size actual size actual size **Straight** Straight Curved Curved Straight Curved Straight Blunt/Blunt **Blunt/Blunt** Blunt/Blunt **Blunt/Blunt Blunt/Blunt Blunt/Blunt** Blunt/Blunt 15 cm Cutting edge: 28 mm No. 14010-15 No. 14011-15 No. 14110-15 No. 14111-15 No. 14510-15 No. 14511-15 No. 14512-15 17 cm Cutting edge: 32 mm No. 14010-17 No. 14011-17 No. 14110-17 No. 14111-17 No. 14510-17 No. 14511-17 No. 14512-17

Mayo-Stille Mayo-Noble **Decapitation Scissors** Stop guard at tips to prevent slippage. 80% of 80% of 70% of actual size actual size actual size Straight Curved Blunt/Blunt **Blunt/Blunt** 15 cm 15 cm Cutting edge: 28 mm Cutting edge: 28 mm No. 14012-15 No. 14013-15 Straight Curved Straight **Blunt/Blunt** Blunt/Blunt **Blunt/Blunt** 17 cm 17 cm 16.5 cm 16.5 cm 21 cm Cutting edge: 32 mm Cutting edge: 50 mm Cutting edge: 32 mm Cutting edge: 30 mm Cutting edge: 30 mm No. 14012-17 No. 14014-17 No. 14015-17 No. 14200-21 No. 14013-17

### Friedmann-Pearson

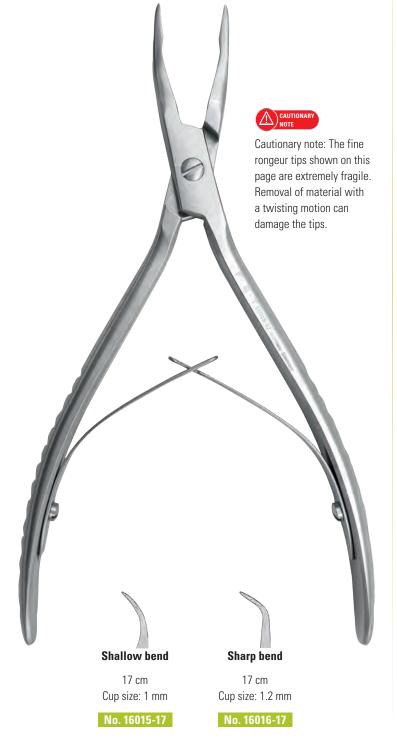
This popular, fine-tipped rongeur is suited for delicate work. The fine-cupped jaws have been designed with a longer and slimmer approach for better visibility.





Pearson

Provides excellent visibility at dissection site due to its extra long and narrow approach to the fine cutting jaws. Especially suitable for larger hands.





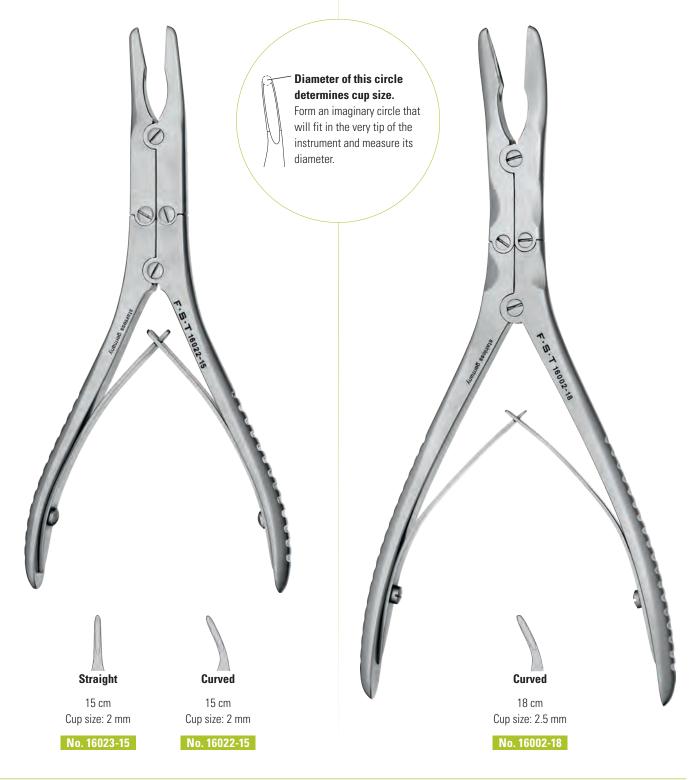
Luer

# Baby-Beyer

Double-action rongeur with strong jaws helps relieve hand strain.

# Beyer

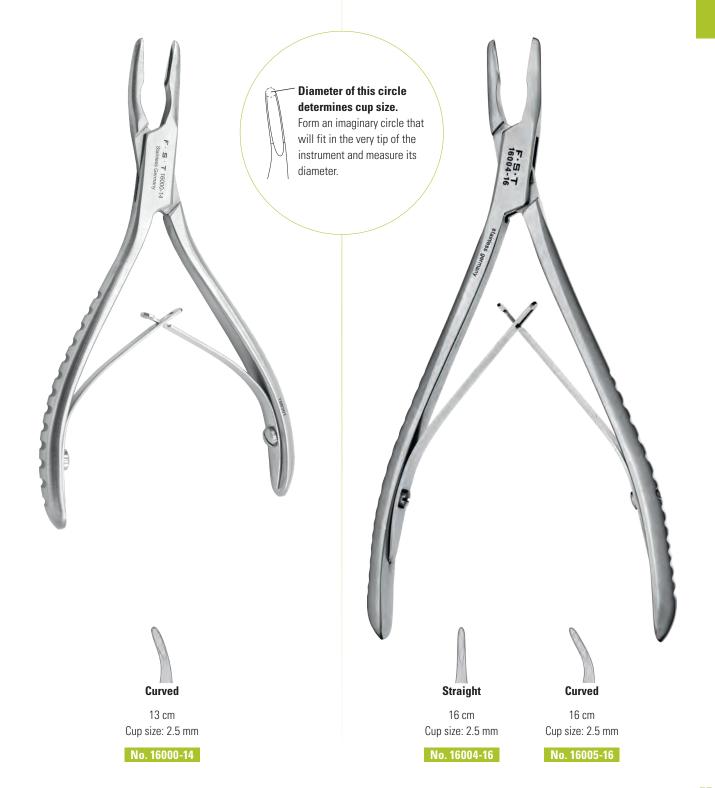
Double-action rongeur with strong jaws helps relieve hand strain.



# Friedmann Lempert

Strong and large jaws are ideal for use on the harder, outer regions of the spinal cord. Also can be used to gain access to delicate structures encased in bone.

Extra fine jaws.



# **Bone Trimmers**

# Cartilage Cutter

Round cutting blades for tissue, cartilage and soft bone.





Curved

14 cm Cutting edge: 8 mm

No. 16109-14





Curved

14 cm Cutting edge: 9 mm

No. 16107-14

### **Dumont #15a Bone Cutter**

Cutting edge on both outside and inside bevel.
Cuts suture, cartilage, bone and steel wire to
0.06 mm, and copper wire to 0.15 mm.









# Angled

11.5 cm Cutting edge: 10 mm Jaw Opening: 2.5 mm Hard carbon steel

No. 11215-01

# **Dumont #15ARW Cutter**

Same structure and functionality as Item No. 11215-01 (left), but with an epoxy coating up to the cutting edge for easier care and maintenance.









### **Angled**

11.5 cm Cutting edge: 6 mm Jaw Opening: 2.5 mm Epoxy coated carbon steel

No. 11215-02

# Tungsten Carbide #15AGHM Cutter







# Angled

11.5 cm Cutting edge: 10 mm Stainless Steel handle with Tungsten Carbide tips

No. 11515-02

# **Bone Nipper**

# Offset Bone Nipper

Strong jaws for cutting tough cartilage.







Angled up

11 cm Cutting edge: 5 mm

No. 16102-11



Angled up

10 cm Cutting edge: 7 mm

No. 16101-10

# **Malleus Nipper**

# Bone Cutting Spring Scissors

# Delicate Bone Cutting Spring Scissors

Slim, strong blades for cutting fine bones and tissues.











Straight

11 cm Cutting edge: 9 mm

No. 16140-11



**Angled Down** 

11 cm Cutting edge: 9 mm

No. 16141-11



Angled up

11 cm Cutting edge: 9 mm

No. 16142-11



Straight Blunt/Blunt

13 cm Cutting edge: 12 mm

No. 16144-13



Curved Blunt/Blunt

12 cm Cutting edge: 12 mm

No. 16143-12

### **Littauer Bone Cutter**

# **Beebee Bone Scissors** Very strong jaws with sharp points.

# **Tungsten Carbide Bone Scissors**

Strong heavy blades for cutting bone.















Straight

No. 16152-11



12.5 cm Cutting edge: 17 mm

No. 16152-12



15 cm Cutting edge: 19 mm

No. 16152-15



10 cm

Cutting edge: 15 mm No. 16044-10



12.5 cm Cutting edge: 15 mm

No. 16030-12



Straight

16 cm Cutting edge: 15 mm

No. 16030-16



# Boehler

Bone splitting cutter with very fine tips and double action joint to relieve strain on your hand.

# Angled up

15 cm Cutting edge: 18 mm

No. 16130-15

# **Skull Flap Cutter**

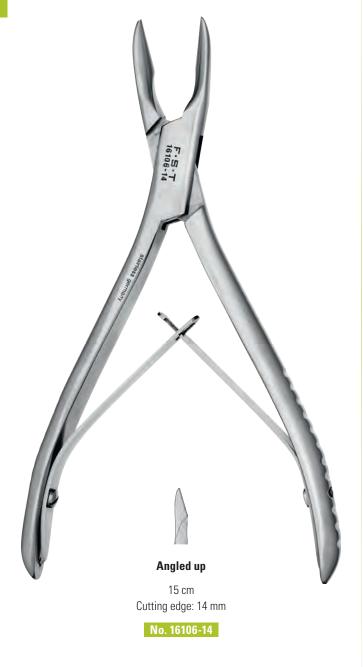
One tip has a flat and narrow platform which fits between dura and skull. Other tip has sharp cutting edge. The double action joint relieves strain on your hand.



**Cleveland Cutter** 

Listen

Gross anatomy bone cutter.



17 cm

Cutting edge: 15 mm

No. 16105-16



14 cm Cutting edge: 20 mm

No. 16104-14

20 cm Cutting edge: 30 mm

No. 16104-19

# **Bone Pliers**

To peel back skull flaps.

Straight / Flat

surface

15.5 cm

No. 16025-14

# **Bone Shears**





24 cm Cutting edge: 6.5 cm

No. 16150-24

### **Bone Forceps**

Strong cross-serrated tips for bone crushing and removal.



# Angled

11.5 cm Tip Ø: 1 mm Cross serrated

No. 16060-11

# **Miniature Self-Tapping Bone Screws**

Used extensively to anchor dental cement to bone, these self- tapping screws have superior holding strength over ordinary machine screws. Stainless steel with fillister flat head.





4 mm Shaft diameter: 0.86 mm Pkg. of 100 screws

No. 19010-10

4.8 mm Shaft diameter: 1.19 mm Pkg. of 100 screws

No. 19010-00

Pkg. of 10 screws

No. 19010-11

Pkg. of 10 screws

No. 19010-01

For pre-drilling use our 0.7 mm burrs, see page 181.

For pre-drilling use our 0.9 mm burrs, see page 181.

# **Bone Wax**

A beeswax-based compound for bone hemostasis. Soft, kneadable and ready to use. **Sterile.** 



Pkg. of 12 foil packs (2,5 g each)

No. 19009-00

# **Micro Curette Delicate Bone Austin Chisel Dissecting** Scraper Chisel Curette tips consist of a scoop with sharp edges and are used for scraping or cleaning. They can also be used for separating For scraping tissue without cutting and transporting, inoculating plates or transferring small amounts of chemicals. into bone. Serrations on cutting edge 1.5 mm 1 mm ● I 1.5 mm T 2 mm ¶ <sup>™</sup> 0.5 mm 12.5 cm 16.5 cm 13 cm 13 cm 13 cm 16 cm 16 cm 12.5 cm No. 10080-05 No. 10081-10 No. 10082-15 No. 10083-20 No. 10075-16 No. 10096-16 No. 10097-16 No. 10095-12

# Von Graefe Knife

Used for cutting dura.



# **Cataract Knife**

One of the most popular dissecting knives with a microfine point. The cutting edge is lance shaped to provide the ideal cutting angle.



# Sichel





Angled 90° 13 cm

Cutting edge: 1.5 mm No. 10059-13



Straight 12.5 cm

Cutting edge: 4 mm No. 10055-12



Angled 30°

12.5 cm Cutting edge: 4 mm

No. 10056-12



Curved

12 cm Cutting edge: 9 mm

No. 10073-14

# **Micro Knife** Micro Knife Side Cut **Circle Knife** Sharp cutting edge around tip. 200% 250% F-S-T 10370-13 2 mm ( 28 mm Straight Side cut Round 13 cm 15 cm 16 cm Cutting edge: 28 mm Cutting edge: 2 mm Cutting edge: 2 mm

No. 10059-15

No. 10058-15

No. 10370-13

# **Gross Anatomy Knives**

Handles are made of fiberglass reinforced yellow nylon with a slip resistant surface that allows little chance of bacterial accumulation. The blades are made of German Molybdenum Stainless Steel.





26 cm Cutting edge: 13 cm

No. 10157-13

28 cm Cutting edge: 15 cm

31 cm Cutting edge: 18 cm

No. 10157-15

No. 10157-18



**Brain sectioning knife** 

44 cm Cutting edge: 30 cm

No. 10152-30

### **Obsidian Stone Age Scalpels**

For applications where extremely fine cuts are required or for studies where trace metals from ordinary scalpel blades cannot be tolerated. These ultra fine cutting edges have been used in human surgical procedures where objectionable scar tissue results from the use of standard scalpels. The blade is made from obsidian—a type of volcanic glass—which allows a much finer blade than is possible with the conventional steel blade. In some cases this makes the relatively inexpensive obsidian scalpel a suitable substitute for an expensive diamond knife. Patterned after "stone age" knives which first made their appearance about 18.000 years ago, these modern versions utilize hard wood and plastic dowels for handles. Plastic dowels are made of polyoxymethylene.



Cautionary note: Obsidian is a very fragile material. Great care should be taken to not exert any lateral pressure on the blade during cutting. Each blade is hand-fashioned, so sizes, shapes and points will vary. While all the blades will have at least one sharp edge, some will have two.



Approximate blade length: 6 mm

No. 10110-01

Approximate blade length: 12 mm

No. 10110-03

Approximate blade length: 6 mm

No. 10110-05

Approximate blade length: 6 mm

No. 10110-07

### **Ceramic Blades**

### Advantages:

- Ceramic edge stays sharp 100 times longer than steel edge
- Rust and corrosion free
- Chemical and acid resistant
- Withstands up to 2400°C (4352°F)
- No electrostatic discharge concerns
- No trace metal contamination
- Fully nonmagnetic

# **Diamond Knives**

This knife has a gem-quality, neutral diamond blade which is honed to the finest cutting edge possible. The blade is made to an ophthalmic surgical standard and is inspected under 400x magnification. The retractable handle aids in care and storage.



Cautionary note: This blade is extremely fragile and vulnerable to lateral pressure.



### **Ceramic Blades**

### Angled 45°

33 x 6 x 0.5 mm Cutting edge: 4.5 mm Pkg. of 5 blades

No. 10025-44

### Angled 45°

33 x 6 x 0.5 mm Cutting edge: 2.5 mm Pkg. of 5 blades

No. 10025-43

# Angled 23°

33 x 6 x 0.5 mm Cutting edge: 14 mm Pkg. of 5 blades

No. 10025-23

# Angled 45°

Aluminum Alloyed Handle

12.5 cm

No. 10025-50

33 x 6 x 0.5 mm Cutting edge: 8 mm Pkg. of 5 blades

No. 10025-45







Grip slides up the handle to protect the tip for safe storage and packing.



# Cutting angle: 30°

12 cm Cutting edge: 1 mm Tip thickness: 0.15 mm

No. 10100-30



# Cutting angle: 45°

12 cm Cutting edge: 1 mm Tip thickness: 0.15 mm

No. 10100-45

### **Blade Holders and Breakers**





11 cm Jaw width: 4 mm Flat surface

No. 10052-11



9 cm Jaw width: 4 mm

Concave / Convex surface Handle diameter: 5.5 mm

No. 10053-09



13 cm Jaw width: 4 mm

Concave / Convex surface Handle diameter: 8 mm

No. 10053-13

### **Breakable Carbon Steel Blades**

These special, high carbon content blades are the only blades that will break cleanly. Not autoclavable.



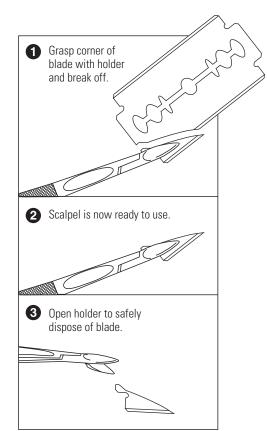


Blade thickness: 0.1 mm Pkg. of 10 blades

No. 10050-00

### **Create Your Own Blade**

With these blade holders/breakers and our special carbon steel blades, No. 10050-00, you can produce microblades in sizes that meet your own individual needs.



# **Carbon Steel Scalpel**

Cold forged from carbon steel and sharpened to eliminate tissue distortion and blade drag. 12.5 cm plastic handle with slip-proof grip. **Sterile.** 









# 22.5° Cutting angle

13.5 cm Cutting edge: 4.5 mm Tip thickness: 0.15 mm

No. 10316-14



# **Crescent blade**

14 cm Cutting edge: 11 mm Tip thickness: 0.2 mm

No. 10317-14



# 15° Cutting Angle

13 cm Cutting edge: 5 mm Tip thickness: 0.15 mm

No. 10315-12



# Needle blade

14.5 cm Cutting edge: 4 mm Tip thickness: 0.2 mm

No. 10318-14

# **Interchangeable Carbon Steel Blades**





Handle for Interchangeable Blades 9.5 cm

No. 10035-00

12.5 cm

No. 10035-12

T 48

Angled Carbon steel

Cutting edge: 10 mm Pkg. of 5 blades

No. 10035-15



Curved Carbon steel

Cutting edge: 10 mm Pkg. of 5 blades

No. 10035-20



Small / Flat Carbon steel

Cutting edge: 1.5 mm Pkg. of 5 blades

No. 10035-05



Large / flat Carbon steel

Cutting edge: 2.75 mm Pkg. of 5 blades

No. 10035-10





Cutting edge: 12 mm Pkg. of 5 blades

No. 10035-25



Arc Carbon steel

Cutting edge: 12 mm Pkg. of 5 blades

No. 10035-30



# Scalpel Handle #4 with Silicone

For heavy, gross anatomy work.

Molded to fit hand.

# Standard Scalpel Handle #4 Solid

Especially suitable for large dissections.

# Blades for #4 Scalpel Handle

The alloy used has a high carbon content which provides a longer lasting edge. Blades come individually wrapped. **Non-sterile.** 





Box. of 100 blades

No. 10020-00



Box. of 100 blades

No. 10021-00



Box. of 100 blades

No. 10022-00



Box. of 100 blades

No. 10023-00





13 cm **No. 10004-13** 

13.5 cm **No. 10009-13** 

2₿

# #3 Standard

# #3 Secure

# Blades for #3 and #7 Scalpel Handles

A safety lock holds the blade securely, and allows simple and safe blade attachment and removal.

The alloy used has a high carbon content which provides a longer lasting edge. Blades come individually wrapped. Non-sterile.





Box. of 100 blades

No. 10010-00



Box. of 100 blades

No. 10011-00



Box. of 100 blades

No. 10012-00

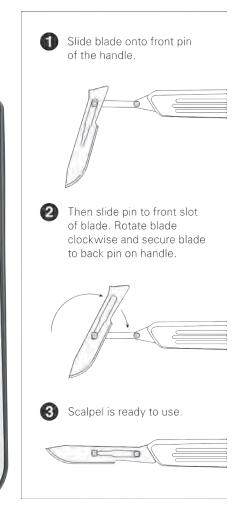


Box. of 100 blades

No. 10015-00







12 cm No. 10003-12

12 cm No. 10003-13

# Short Scalpel Handle #7

# **Standard Scalpel** Handle #7

# Scalpel Blade Remover

For safe removal of scalpel blades, simply insert scalpel with blade into the Scalpel Blade Remover and press the sides together. This will dislodge the blade from handle and hold the blade securely for release.



No. 10002-00



# **Scalpel Blade Remover and Disposal Box**

This plastic device will remove used scalpel blades safely and retain them for safe disposal. Can be used for blades that fit the #3, #4, #7 and Gross Anatomy handles.



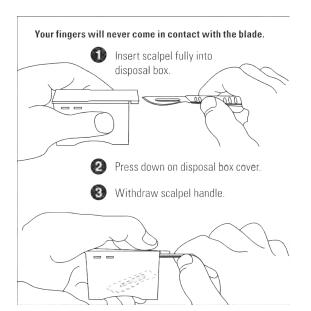




12 cm

No. 10007-12

16.5 cm No. 10007-16



# **Gross Anatomy Blade and Handle**

# **Disposable Safety Scalpels**

Plastic handle #3 with stainless steel blades. The protective cartridge completely covers the blade for safe, fast and easy disposal. Single-use and non-sterile.







Scalpel shown with safety cartridge closed and locked into place.

Box of 100 blades

No. 10060-00

No. 10060-13

#10 scalpels Pkg. of 10 blades

No. 10000-10

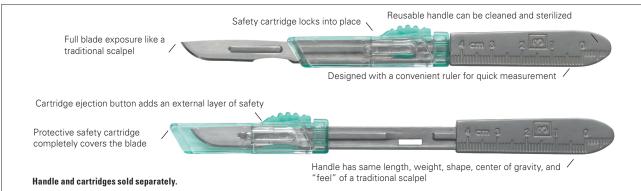
#11 scalpels Pkg. of 10 blades No. 10000-11

#15 scalpels Pkg. of 10 blades

No. 10000-15

# **Safety Scalpel Blade Cartridges**

The Safety Scalpel Handle #3 is compatible with all Safety Scalpel Blades. The handle is reusable and made of Teflon coated stainless steel which provides a non-stick surface. The Blade Cartridges are color-coded with clear windows for easy identification. The protective cartridge completely covers the blade for safe, fast, and easy disposal. **Handle is reusable and autoclavable. Blades are single-use and non-sterile.** 





No. 10015-10

No. 10010-10

No. 10011-10

No. 10006-12

# FORCEPS, TWEEZERS, HEMOSTATS & VASCULAR INSTRUMENTS





# **Dumont #5SF**

The finest tips ever produced by Dumont.

# **Dumont #5 Fine Tips**

Finished under magnification and polished on the inside, the tips close flat to 3 mm and are less likely to open under excess pressure.





# 0,05 mm **Biology**

11 cm Inox 0.05 x 0.01 mm

No. 11254-20

# **Dumont #5 Ceramic Coated**

These forceps are non-reflective. The scratch and corrosion resistant coating guarantees durability.





# 0,05 mm **Biology**

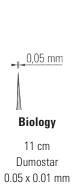
11 cm Ceramic coated Inox 0.05 x 0.01 mm

No. 11252-50

# **Dumont #5CO**

These forceps have been honed down to make this the lightest and most precise Dumont forceps available.





No. 11295-20



5SF

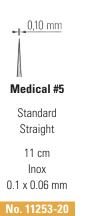




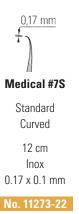
# Dumont Medical Micro-Blunted Atraumatic Tipped Forceps

The sides of these forceps are distinctively ribbed to provide a better holding surface for maximum control of the instrument. The shanks are arched toward each other to transmit more holding strength to the points. The smooth inside surfaces at the tips will close flat to 5 mm with gentle pressure, increasing the total holding area considerably. The microscopically matched tips are gently blunted to prevent tissue puncture and are recommended as micro needle holders.

















# Dumont #55

Bevelled, like #5 but with extra light and fine shanks.

# **Dumont #5 Mirror Finish Forceps**

The last 5 mm on the inside of the tips are highly polished to help prevent tissue from sticking. Ideal for embryos, nerves or any other adhesive tissue.

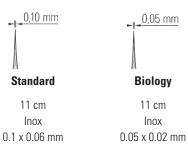




# No. 11255-20

11 cm Dumostar 0.05 x 0.02 mm

No. 11295-51



No. 11251-23

# **Dumont #5**

These are the most widely used Dumont forceps. Bevelled, very fine shanks for best visibility.



0,10 mm

**Standard** 

11 cm

Inox

0.1 x 0.06 mm

Dumoxel

Dumostar

No. 11295-00





11252-20

11252-40

11251-10





0,08 mm

Standard

11 cm

Carbon steel

0.08 x 0.04 mm

No. 11251-10



Inox 0.05 x 0.02 mm

# No. 11252-20

Dumoxel

No. 11252-30

Dumostar

No. 11295-10

Titanium

No. 11252-40



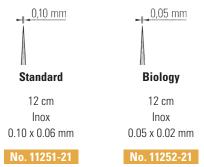
No. 11252-23



# **Dumont WA #5**

These specially designed forceps offer improved stability with an ergonomic body that allows the forceps to fit more comfortably in your hand. A domed end with no soldering grooves allows the forceps to be thoroughly and easily cleaned, preventing biofilm residues.





# Dumont #5XL





No. 11253-10



# **Dumont #L5**

Slide sleeve keeps tips together so specimens may be securely held and retained. Slide may be locked in place so that forceps can be used in regular fashion.



# **Dumont #5** Teflon® Coated

These antimagnetic forceps are ideal for use in cryogenic environments and for EM samples. Teflon® coating provides a non-stick surface.



# 0,10 mm **Standard** 11 cm

Inox 0.1 x 0.06 mm

No. 11253-27



# 0,10 mm Standard

11 cm Teflon coated Inox 0.1 x 0.06 mm

No. 11626-11

# **Dumont #5/45**

45° tips for improved visibility and control.





# 0,10 mm

# Standard

11 cm Dumoxel 0.1 x 0.06 mm

No. 11251-35

# **Dumont #5/45 Cover Slip Forceps**

Designed to pick up cover slips out of multi-well plates. The tip width is squared for a better grip.





1 mm from tip to bend

11.5 cm Dumoxel Upper tip: 0.1 x 0.08 mm Lower tip: 0.1 x 0.02 mm

No. 11251-33



Dumont #3

Tapered and sturdy shanks.



# Dumont #6

Sharply angled tips for access to difficult areas.









12 cm Dumoxel 0.17 x 0.1 mm

No. 11231-30



12 cm Dumostar 0.17 x 0.1 mm

No. 11293-00



11 cm

Inox 0.17 x 0.1 mm

No. 11231-20



Standard

11.5 cm Inox 0.17 x 0.1 mm

No. 11260-20



# **Dumont #7 Fine Tips**

Finished under magnification and polished on the inside, the tips close flat to 3 mm and therefore less likely to open under excess pressure.





11.5 cm Inox 0.07 x 0.03 mm

No. 11274-20





11272-40





# **Standard**

11.5 cm Dumoxel 0.17 x 0.1 mm

No. 11271-30

Dumostar No. 11297-00

No. 11272-40

# Dumont #7 **Ceramic Coated**









# **Biology**

11.5 cm Dumoxel 0.07 x 0.04 mm

Dumostar

No. 11297-10

Titanium

**Biology** 

11.5 cm Ceramic coated Inox 0.07 x 0.04 mm

No. 11272-50

# **Dumont #7B**







**Standard** 

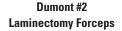
11.5 cm Inox 0.17 x 0.1 mm

No. 11270-20

# F · S · T

# **Dumont #4**

Similar to #5, but with broader shanks.



These forceps can be used to break off delicate bone during mouse laminectomies, as well as fine skull bone removal.

# Dumont #2AP Epoxy Coated

Provides good insulation for up to 220 AC voltage work and highly impervious to chemical solutions. Frozen or super cold sections will not adhere to the gripping surfaces.





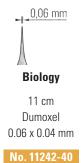


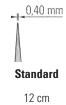


Dumoxel 0.13 x 0.08 mm

No. 11241-30

Dumostar No. 11294-00





Inox 0.4 x 0.02 mm

No. 11223-20



12 cm Epoxy coated Inox 1.5 x 0.7 mm

No. 11220-21



# **Dumont AA**

# Dumont AA Epoxy Coated

Slip-proof acid and electric shock resistant epoxy coating covering 17.5 mm from the tips.

# **Dumont SS**

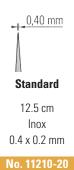
The tips are smooth on the inside for a gentle grip. Applying full strength will not separate tips and a strong hold on the smallest specimen is ensured.







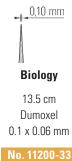












F·S·T by DUMONT 9

**Dumont Mini Forceps** 

**Dumont #2E Components Forceps** 

**Dumont #5AC** 













7 cm Inox 0.12 x 0.07 mm

No. 11200-10



7 cm Inox 0.14 x 0.06 mm

Mini #5 **Standard** Standard 8.2 cm Inox 0.09 x 0.05 mm No. 11200-12 No. 11200-14



For components

11.5 cm Dumoxel 8 x 1.2 mm

No. 11229-08



For components

11.5 cm Dumoxel 10 x 1.2 mm

No. 11229-10



Type #5 Anti-Capillary **Biology** 

11.5 cm Inox 0.07 x 0.02 mm

No. 11258-20

# **Gold Plated Forceps**

Gold-plating gives corrosion resistance to most chemicals, salts and acids. These forceps are perfect for any application where corrosion resistance and toughness are primary requirements.

# . . .





W

11 cm Gold plated Stainless Steel 0.1 x 0.06 mm

No. 11915-11



Curved

12 cm
Gold plated
Stainless Steel

0.2 x 0.1 mm No. 11917-12



11 cm Gold plated Stainless Steel 0.1 x 0.06 mm

No. 11911-11

# **Diamond Coated Forceps**

Diamond coating provides increased corrosion resistance and greater protection from wear and tear, which extends the operational life of the forceps, as well as providing a stronger grip at the tips.



Straight

14 cm Diamond coated Stainless Steel 0.15 x 0.1 mm

No. 11990-14



Angled 30°

14 cm

Diamond coated

Stainless Steel

0.15 x 0.1 mm

No. 11991-14





12 cm Diamond coated Stainless Steel 1.65 x 0.05 mm

No. 11992-12

# **Mirror Finish Broad Shanks**

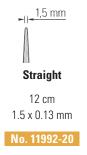
These forceps have long and narrow shanks with thin, highly polished tips to prevent tissue from sticking. Ideal for embryos, nerves, or other adhesive tissues.

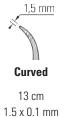




# #2A Forceps









# Forceps with Replaceable Tips

Stainless steel body with replaceable plastic tips. Tips are made of polyvinylidene fluoride (PVDF) and are electrostatic discharge (ESD) safe. Body and plastic tips are corrosion and abrasion resistant.





Pkg. of 2 tips and 3 screws Replacement plastic tips

Straight / Fine

4 cm 0.6 x 0.6 mm

No. 11988-01



Pkg. of 2 tips and 3 screws Replacement plastic tips

Straight / Very fine

4 cm  $0.5 \times 0.5 \text{ mm}$ 

No. 11988-02



Pkg. of 2 tips and 3 screws Replacement plastic tips

4 cm

0.5 x 0.5 mm

No. 11980-13

0,5 mm

Straight

13 cm

0.5 x 0.5 mm

Stainless Steel body

with plastic tips

Curved / Very fine

No. 11988-03



# Fine Forceps Broad Shanks

Straight forceps with sturdy coarse tips.

# **Fine Forceps Mirror Finish**

The last 5 mm on the inside of the tips are highly polished to help prevent tissue from sticking. Ideal for embryos, nerves or other adhesive tissue.

# **Fine Forceps Self-Closing**

Ideal for lifting and holding EM grids. Consistent pressure at tips.

Correctly tensioned "cross-over" shanks come to a microscopically matched point



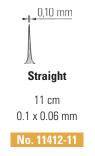


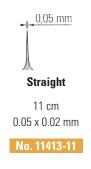


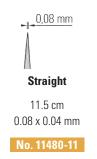


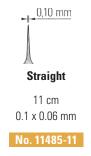














# **Moria Ultra Fine Forceps**

These forceps have the most finely executed points available. They are extremely light, superbly balanced and have a gentle spring action. The shanks are specially designed with an arch which ensures maximum force to the tips. The tips close flat for 6 mm from the points to give a large holding area. The tips have been expertly finished under magnification.



Balanced with gentle spring action and tips that are perfectly matched.

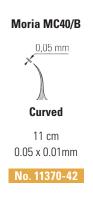


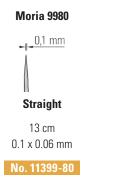


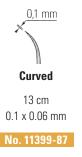




No. 11370-40







Moria 9987





# **Moria Bonn Forceps**

# **Moria Paufique Forceps**



11383-56







20x magnification

# Moria 7835



# Straight

Tying platform with 1x2 teeth

 $7.5 \, \text{cm}$ Tip width: 0.3 mm Tying platform: 4 mm Stainless Steel

No. 11383-50

# Moria TI7835



# Straight

Tying platform with 1x2 teeth

7.5 cm Tip width: 0.3 mm Tying platform: 4 mm Titanium

No. 11383-56

# Moria 3225



# **Straight**

Tying platform with 1x2 teeth

8.5 cm Tip width: 0.12 mm Tying platform: 5 mm Stainless Steel

No. 11390-25

# S&T®

# **Fine Forceps**

# SuperGrip Forceps

The tips are processed with MicroCrystals®, a method developed by S&T® to infuse tungsten carbide on stainless steel. The formation of this ultra-fine coating guarantees atraumatic handling of tissue while improving the grip dramatically. The recommended use is where forceps are utilized as needle holders or when slippery tissues might be encountered.





S&T JF-5 TC



300% The gripping surface is similar to a match head.



11 cm 0.3 x 0.25 mm

No. 00108-11



No. 00109-11







# Bonn

# **Mirror Finish Bonn Forceps**

# with Teeth

**Mirror Finish Suture Tying Forceps** 

A unique tip style fusing a suture tying platform and a 1x2 teeth tip for tissue manipulation.

The fine Bonn forceps features a tying platform and is also available with additional 1x2 teeth. It's designed for tissue manipulation and suturing. The wide handle ensures safe handling. The fine and precise tips make it suitable for work under a high magnification.









Straight Smooth with platform

7 cm Tip width: 0.3 mm Tying platform: 5 mm

No. 11083-07



20x magnification

Straight 1x2 Teeth

7 cm Tip width: 0.3 mm Teeth width: 0.1 mm

No. 11084-07



Straight Tying platform with 1x2 teeth

10.5 cm Tip width: 0.12 mm Tying platform: 5 mm

No. 11090-10



Straight Smooth with platform

10.5 cm Tip width: 0.3 mm Tying platform: 5 mm

No. 11093-10



F-S-T

Straight Tying platform with

1x2 teeth

9 cm Tip width: 0.3 mm Tying platform: 6 mm

No. 11090-09

# **Moria Suture Tying Forceps**

Used to suture after surgery is complete. This requires the manipulation of a calibrated nylon thread and the use of a specific instrument: a tying forceps, straight or curved, without teeth.





# **McPherson Forceps**







Straight Smooth with platform

9.5 cm Tip Ø: 0.3 mm Tying platform: 8 mm

No. 11393-04

# Moria 9605



Smooth with platform

 $8.5\,\mathrm{cm}$ Tip Ø: 0.3 mm Tying platform: 7.5 mm

No. 11393-05

# **Suture Tying Forceps**

The platform tips close flat. This ensures a reliable grip on sutures.





# **Suture Tying Forceps**

The platform tips close flat. This ensures a reliable grip on sutures.





Smooth with platform

13.5 cm Tip Ø: 0.3 mm Tying platform: 6 mm

No. 00272-13



**Straight** 

Smooth with platform

10 cm Tip Ø: 0.5 mm Tying platform: 5 mm

No. 18025-10



0,4 mm

Angled 45°

Smooth with platform

 $9\,\mathrm{cm}$ 

Tip Ø: 0.4 mm

Tying platform: 6 mm

No. 11063-07

# **Round Handled Suture Tying Forceps**

Round handles allow easy fingertip adjustments.

# **Vial Forceps**

Tips taper for 6 cm allowing easy access to specimens in vials.

# **Vitro Grasping Forceps**





Smooth with platform

 $10.5\,\mathrm{cm}$ Tip Ø: 0.35 mm Tying platform: 5.5 mm

No. 18026-10





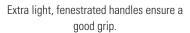
No. 11900-14

# **Graefe Forceps**

# Bishop-Harman

# **Octagon Forceps**

The octagon shaped grip provides a particularly secure finger hold.









The length of all forceps is 9.5 cm The dimensions of all tips are 0.8 x 0.5 mm





Serrated

No. 11040-08

No. 11041-08



No. 11042-08



No. 11043-08

The length of all forceps is 7 cm The dimensions of all tips are 0.6 x 0.5 mm



No. 11064-07

0,6 mm Curved

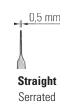
Serrated

No. 11065-07



No. 11066-07





No. 11069-08



No. 11070-08



The length of all forceps is 8.5 cm

The dimensions of all tips are  $0.5 \times 0.5 \text{ mm}$ 

# **Extra Fine Graefe Forceps**

# **Graefe Forceps**





11051-10 11054-10

11650-10 - 11652-10



The length of all forceps is 10 cm The dimensions of all tips are 0.5 x 0.5 mm

Straight

Serrated

No. 11150-10

\_\_0,5 mm



Slightly curved Serrated



No. 11152-10



No. 11151-10

0,5 mm

Slightly curved

Smooth

No. 11159-10



Curved Smooth

Serrated

1.2 x 0.9 mm

Titanium

No. 11650-10

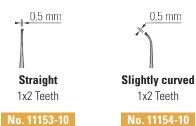


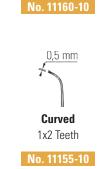
No. 11652-10

0,8 mm

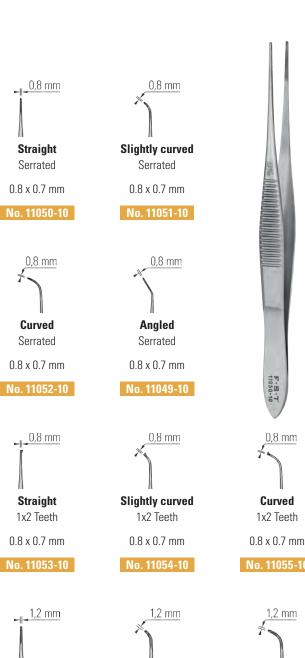
Curved











Slightly curved

Serrated

1.2 x 0.9 mm

Titanium

No. 11651-10

# **Sliding Lock Forceps**

# **Episcleral Forceps**

# **Pierse Fixation Forceps**

For exceptional gripping power with no damage to sclera, vascular sheath and epineurium.

The tips of these forceps arch toward each other, closing flat. Exceptional gripping power is possible with minimal damage to tissue. A limit pin prevents excessive applied pressure.







1800%

Tissue retention hole of 0.3 mm behind tips.



No. 11062-10



Arched

10 cm 1.3 x 3 x 0.2 mm

No. 11071-10



13 cm 1 x 0.5 mm

No. 18155-13



# **Plastic Forceps**

These forceps are non-magnetic, acid resistant and able to withstand temperatures up to 240°C (464°F). Tips do not spread under pressure. Plastic forceps are made of Acetyl and will be sold in packages of 10 pieces.

# **Cross Action Forceps**

These tissue transport forceps have a gentle action.

# **Cover Glass Forceps**











11.5 cm 0.4 x 0.25 mm

No. 11700-00

Curved

Sharp

11.5 cm

0.3 x 0.2 mm

No. 11700-01



No. 11700-02

Angled 45° Sharp 11.5 cm 0.3 x 0.2 mm



Straight



No. 11700-04



Cross serrated 10 cm 4 x 8 mm

No. 11075-00



Straight Smooth 10.5 cm 4 x 10 x 0.6 mm No. 11074-02



**Angled** Smooth 10.5 cm

4 x 10 x 0.6 mm No. 11073-10

# **Ring Forceps**

For transport of tissue and organs. With limit screw to prevent excessive applied pressure.



Cupped forceps for atraumatic gripping of organs and tissues.

# **Live Insect Handling Forceps**

Very delicate.















Ring 8.5 cm ID: 1 mm; OD: 1.5 mm x 0.5 mm

No. 11101-09



Straight
Ring
9 cm
ID: 2.2 mm; OD: 3 mm

x 1.3 mm
No. 11103-09



Straight
Ring
9 cm
ID: 4.8 mm; OD: 6 mm
x 1.5 mm
No. 11106-09





Straight
Narrow
10 cm
0.9 x 0.15 mm
No. 26029-10



Straight
Wide
10 cm
2.3 x 0.3 mm

No. 26030-10

# Micro-Adson

Our most delicate version of the popular Adson forceps.

# F.S.T 11018-12

# Straight Serrated

12 cm 0.8 x 0.9 mm

No. 11018-12



# 1x2 Teeth 12 cm

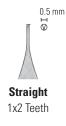
0.8 x 0.9 mm No. 11019-12

# **Micro-Adson with Fenestrated Handle**

Our delicate Micro-Adson forceps, with five windows to aid in stability and easy finger adjustments.



# 0.8 x 1 mm No. 11020-12



12 cm 0.5 x 0.6 mm No. 11032-12



0.8 mm

0.8 x 2 mm Tying platform: 6 mm

No. 11022-12

# Adson

Wide, strong grip with narrow tips.





11006-12 11027-12





# No. 11006-12

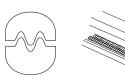
1.5 mm





Adson DeBakey Adson-Graefe Adson-Brown





# Atraumatic DeBakey Serrations

This tooth pattern, as shown, consists of one row of atraumatic teeth meshed with two opposite rows of atraumatic teeth.

These two forceps are ideal for gentle, atraumatic gripping of vessels, tissue and other delicate structures.







**Straight**DeBakey serrations

12.5 cm 1.75 x 1.5 mm

No. 11617-12



**Straight**DeBakey serrations

15 cm 1.75 x 1.5 mm

No. 11616-15



**Straight** Fine teeth

12.5 cm 4.5 x 1.25 mm

No. 11030-12



**Straight** Shark teeth

12 cm 2 x 1.4 mm

No. 11627-12

# **Standard Pattern**

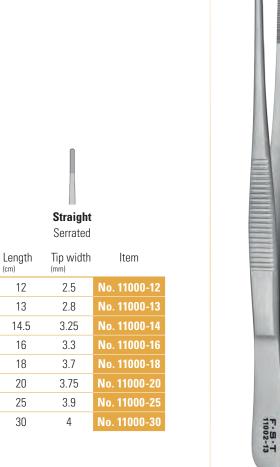
Broad pattern with strong spring action.

# **Narrow Pattern**

Lighter spring action than standard pattern for grasping more delicate tissue.



11602-14





Length (cm)	Tip width	ltem
12	2	No. 11002-12
13	2.15	No. 11002-13
14.5	2.25	No. 11002-14
14.5	2.25	No. 11602-14
16	2.35	No. 11002-16
18	2.4	No. 11002-18
20	2.75	No. 11002-20
25	3.2	No. 11002-25

Straight

Serrated



Length (cm)	Tip width	Item
12	2	No. 11003-12
13	2.15	No. 11003-13
14.5	2.25	No. 11003-14
16	2.35	No. 11003-16
18	2.4	No. 11003-18
20	2.75	No. 11003-20



# Curved Serrated

30

Length (cm)	Tip width	Item
12	2.5	No. 11001-12
13	2.8	No. 11001-13
14.5	3.25	No. 11001-14
16	3.3	No. 11001-16
18	3.7	No. 11001-18
20	3.75	No. 11001-20

# Semken

The Semken tweezers are characterized by their slim shape and fine tips. Their anatomical (toothing) or surgical (1x2 teeth) tips make them ideal for grasping tissue. The serrated grip surface ensures a secure hold during use.

# NEW ITEM TITANIUM: 11608-15 Straight Serrated 13 cm Tip width: 1.3 mm No. 11008-13 Curved Serrated 15 cm Tip width: 1.5 mm 13 cm Tip width: 1.3 mm No. 11008-15 Straight No. 11009-13 1x2 Teeth 15 cm 15 cm 12.5 mm Tip width: 1.5 mm Titanium Tip width: 1.5 mm Tip width: 1.3 mm No. 11608-15 No. 11009-15 No. 11024-12

# **DeBakey Round Handle Forceps**

Ideal for gentle, atraumatic gripping of vessels, tissue and other delicate structures. Two rows of atraumatic teeth interfit with one oppostie row of atraumatic teeth. The round handles allow easy fingertip adjustments.



Straight DeBakey serrations

15 cm Tip width: 1.2 mm

No. 11076-15

# **Multipurpose Forceps**

Balanced instruments are designed to put the center of gravity between the thumb and index finger. This is accomplished by adding a slight counter weight to the proximal end of the instruments. The design enhances tactile feel, aiding in better control and precision.

The tips of these multipurpose forceps are configured to enable their use as dilators at the front, as well as needle holders and tying forceps further in the back. The platform at the tips close parallel ensuring a reliable grip.





14.5 cm Tip Ø: 0.1 mm

No. 18601-15



# **Straight**Suture tying platform

15 cm Tip Ø: 0.3 mm

No. 18602-15



Angled

Smooth

14.5 cm

Tip Ø: 0.2 mm

No. 18603-14

### Tissue Forceps





### Tissue Forceps

Used with rongeur No. 16021-14 in laminectomy to securely hold spinal column.



**Straight** 1x2 Teeth / Standard

12 cm 12 cm No. 11023-12 No. 11021

No. 11021-12

**Straight** 2x3 Teeth / Standard

14.5 cm **No. 11023-14** 

1x2 Teeth / Narrow 10 cm No. 11023-10

> 14.5 cm **No. 11021-14**

14.5 cm **No. 11022-14** 

15.5 cm **No. 11023-15** 

No. 11021-15

15.5 cm

15.5 cm

No. 11022-15





### Gillies

### Russian

### **Organ Holding Forceps**

With limit screw to prevent excessive applied pressure.







### Straight

1x2 Teeth & cross serrated

15 cm 1.5 x 2 mm

No. 11028-15



**Straight** Cupped teeth

15 cm 6 x 11 mm

No. 11026-15



**Straight** Serrated

14.5 cm 8 x 11 mm

No. 11031-15

# **London Forceps** 16 mm



No. 11080-02





**Gerald Forceps** 

16 cm

0.3 x 0.5 mm

No. 11602-16

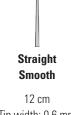
### **Taylor Forceps Potts-Smith Forceps Mouse Handling Forceps** Serrated and smooth versions available. Long handles make picking up small rodents easy and help prevent bites. **Straight** Serrated **Straight** 18 cm Serrated 1.25 x 1 mm 17 cm No. 11012-18 1.5 x 1 mm No. 11010-17 21 cm 1.8 x 1.5 mm No. 11012-21 25 cm 2 x 1.6 mm Straight Smooth No. 11012-25 17 cm 1.5 x 1 mm No. 11016-17 Curved Serrated 18 cm 1.25 x 1 mm Curved No. 11013-18 21 cm Serrated Forceps with serrated silicone tips 17 cm 21 cm Gripping surface: 1.5 x 1 mm F-S-T 11010-1 1.8 x 1.5 mm 15 x 20 mm No. 11011-17 No. 11013-21 No. 11036-20 F.S.T 11024-18 $\bigcirc$ Curved **Straight** Curved Smooth 1x2 Teeth 1x2 Teeth 17 cm 18 cm Replacement silicone tips 18 cm 1.5 x 1 mm 1.25 x 1 mm 1.25 x 1 mm Pkg. of 2 tips No. 11017-17 No. 11024-18 No. 11025-18 No. 11036-90

**Ultra Fine Hemostat** 

**Fine Hemostat** 

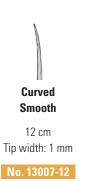












### Micro-Mosquito

### **Halsted-Mosquito**



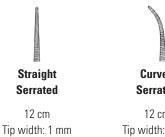


13008-12

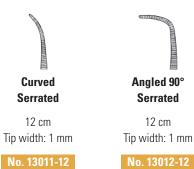
13108-12

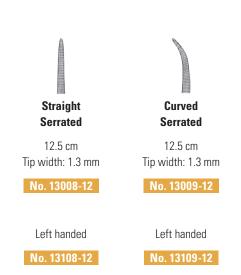






No. 13010-12





Crile Kelly





Straight Serrated 14 cm

Tip width: 1.5 mm No. 13004-14

Curved Serrated

14 cm Tip width: 1.5 mm

No. 13005-14



14 cm Tip width: 1.5 mm

No. 13018-14



Serrated

14 cm Tip width: 1.5 mm

No. 13019-14



**Baby-Mixter** 





14 cm Tip width: 1.3 mm

No. 13013-14



14 cm Tip width: 1.5 mm

No. 13014-14



Curved Serrated

14 cm Tip width: 1.5 mm

No. 13015-14

### Hartmann

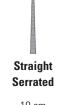


13003-10



### **Backhaus Towel Clamp**





10 cm Tip width: 1 mm

No. 13002-10



10 cm Tip width: 1 mm

No. 13003-10





13 cm

No. 11095-13

### **Allis Clamp**

Tissue and organ holding forceps.

### **Lorna Towel Clamp**





\$\[ 4 mm
Straight
5x6 Teeth

15 cm Tip width: 4 mm

No. 11091-15

③ ] 3 mm
Straight
4x5 Teeth

12 cm Tip width: 3 mm

No. 11092-12



10 cm Tip width: 7 mm

No. 11096-10



Curved Serrated

13 cm Tip width: 7 mm

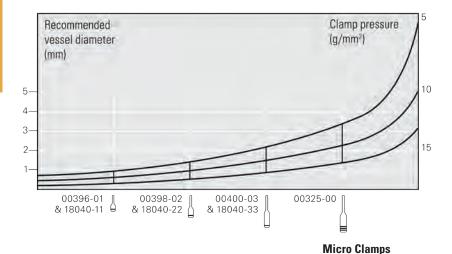
No. 11096-13

### **Clamp Size and Clamp Pressure**

Clamp pressure is determined by the closing force of the clamp (in grams), divided by the area of the vessel wall that is compressed between the jaws (in square millimeters). Thus, the smaller the vessel, the higher the pressure exerted.

Despite the wide range of closing forces, the pressure exerted by each clamp, big or small, remains consistent throughout the series. Each size of clamp exerts a pressure of 5g/mm2 when used on the largest vessel in its range, and 15g/mm2 when used on the smallest vessel. Even at the higher range, S&T's micro clamps have the gentlest working pressure of any small vessel clamp available.

Clamp (ea)	LxW(mm)	Vessel Diameter Range (mm)
00396-01 & 18040-11	3.5 × 1.0	0.4 - 1.0
00398-02 & 18040-22	5.5 × 1.5	0.6 - 1.5
00400-03 & 18040-33	7.5 × 1.75	1.0 - 2.25
00325-00	10 x 2.15	2.0 - 5.0 💿













### **Double Micro Clamps**

For vascular approximation at anastomosis. These clamps are mounted on a 10 mm sliding bar and can easily be moved by applying gentle force. The distance between the jaws of the clamps is adjustable from 3 to 16 mm.







No. 18040-22



No. 18040-33

### **Micro Clamp Applying Forceps**

### **Micro Clamp Applying Forceps**







14 cm Only compatible with **S&T Micro Clamps** Lock: Yes

No. 00071-14

Lock: No

No. 00072-14







14.5 cm Compatible with S&T Micro Clamps and Double Micro Clamps. Lock: No

No. 18040-14

### **Micro Clip Applicator** with Lock







Lock: Yes

No. 18056-14

### **Forceps Style Clip Applicator**

This applicator features special U-shaped side supports for improved seating of the clips.





14 cm For use with FST 18055 and 18555 series micro serrefines.

Lock: No

No. 18057-14

### **Biemer Clip Applicator** (Forceps Style)

Application forceps for Biemer clamps made of surgical stainless steel.







14 cm For use with FST 18058 (Biemer Clip) series

Lock: No

No. 18059-14

### **Stainless Steel Micro Serrefines**

Used to obtain a clear surgical field for extended arterial cross-clamping.



Micro Serrefines should never be compressed with fingers; use only the appropriate applicator No. 18056-14 or No. 18057-14.

Delicate atraumatic serration



Jaw dimesions (mm)	Total length (mm)	Jaw pressure (g)	Item	
10 x 2	19	60	No. 18055-01	
8 x 2	16	85	No. 18055-02	
6 x 1	15	100	No. 18055-03	
4 x 0.75	13	125	No. 18055-04	

Jaw dimesions (mm)	Total length (mm)	Jaw pressure (g)	ltem	
6 x 1	17	85	No. 18055-05	
4 x 0.75	16	85	No. 18055-06	

### **Titanium Micro Serrefines**

Lightweight with strong clamping pressure.

Delicate atraumatic serration



Jaw dimesions (mm)	lotal length (mm)	pressure (g)	Item	
10 x 2	19	60	No. 18555-01	
8 x 2	16	85	No. 18555-02	
6 x 1	15	100	No. 18555-03	
4 x 0.75	13	125	No. 18555-04	





### **Moria Vessel Clamp**

Straight

33 mm Serrated: Yes Light pressure Jaw dimensions: 13 x 1.6 mm



Moria 201/A

No. 18320-11

### **Moria Bulldog Type Clamps**

53 mm Serrated: No Strong pressure Jaw dimensions: 16 x 2.5 mm



Straight Moria MC43

No. 18374-43



Curved Moria MC44

No. 18374-44

### **Bulldog Artery Spring Clamp**

Can be used with a minimum of distortion for MRI investigations.



Straight 30 mm Serrated: Yes Light pressure



No. 18144-30

### **Dietrich Bulldog Clamps**

Serrated: Yes

Closing pressure: 50 g



Straight 52.5 mm

No. 18038-45



No. 18039-45

### **Bulldog Type Serrefines**

Serrated: Yes

Straight 28 mm Medium pressure

Curved 28 mm Medium pressure



No. 18050-28

No. 18051-28



Straight 50 mm Strong pressure



No. 18050-35

No. 18050-50



Curved 35 mm Strong pressure Curved 50 mm Strong pressure



No. 18051-35

No. 18051-50

### **Schwartz Micro Serrefines**

Serrated: No Strong pressure 26 mm



Straight





Light bend

No. 18052-02



Sharp bend

No. 18052-03



### **Biemer Clip**

Serrated: Yes Straight

Closing pressure: 0.29 - 0.39 N / 30 - 40 g

15 mm

Clamping Length: 6 mm

No. 18058-15



18 mm

Clamping Length: 9 mm

No. 18058-18



### **Mini Serrefines**

28 mm Medium pressure Serrated: Yes Jaw dimensions: 6 x 2 mm

Straight

No. 18054-28



Curved

No. 18053-28



### Horizon™ Metal Ligation System

The Horizon™ System provides surgeons with a strong, secure clip coupled with an efficient, convenient easy-load cartridge system. The preformed chevron shape of the Horizon™ Clip engulfs tissue with precise tip-to-tip closure. Heart-shaped wire is designed to give each clip a firm grip on vessels, while the triangulated cross-section of the clip leg maximizes surface-to-surface contact between clip and jaw, practically eliminating clip fallout.

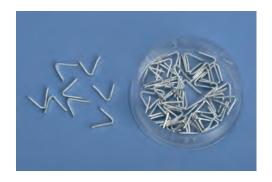


### Silver Neuro Clips

These single-use, silver neuro clips are meant for permanent vessel occlusion.

Pkg. of 100 clips

No. 18040-00



### Vascular Occluders

### **Applications**

- Fast, dependable zero-flow baseline determination in blood flow studies.
- Partial to full occlusion of vessels for circulation research studies.
- Prolonged implantations, such as chronic blood flow studies.
- · Constriction of soft organs in acute or chronic applications.

### **Operation instruction**

- 1. Apply the occluder cuff around the exposed blood vessel. Secure it in place with suture material through the eyelets.
- 2. Occlude the vessel to the desired degree by inflating the diaphragm with air or liquid injected into the actuating tube using a syringe and blunt needle. Clamp the tubing to maintain occlusion of the vessel over time.
- 3. To deflate, simply withdraw the air or liquid.

### Benefits

- Occlusion is accomplished without traction on vessels or surrounding
- The actuating tube may be exteriorized from the occlusion site for remote actuation.
- Performance during implantations is reliable and consistent.
- Easily maintained: can be autoclaved or cold sterilized.
- Made from soft, flexible 100% silicone rubber.
- Fully operational with instant response using air, liquids, or inert gases.

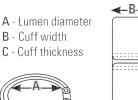
### Selection

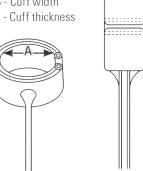
The lumen diameter when deflated is usually the determining factor in the selection of the proper device. Select the occluder size that provides a slightly loose fit around the subject vessel. The cuff width and thickness will vary, depending on models and sizes.

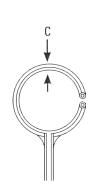












The actuating tube length is 90 cm and measures 0.76 mm ID x 1.6 mm OD. Detailed instructions are included.

A: Lumen diameter

B: Cuff width

C: Cuff thickness

VO-1.5 N

A: 1,5 mm; B: <3,5 mm; C: 1,5 mm

No. 18080-01

V0-2

A: 2 mm; B: 5 mm; C: 1.5 mm

No. 18080-02

V0-3

A: 3 mm; B: 5 mm; C: 1.5 mm

No. 18080-03

### **Vessel Dilators**

Highly modified forceps with elongated, parallel tips which are highly polished. Designed for controlled intraluminal vessel dilation.









Angled 10°

11 cm Tip Ø: 0.1 mm

No. 00126-11

Tip Ø: 0.2 mm

No. 00125-11





Angled 45°

13.5 cm Tip Ø: 0.2 mm

No. 00276-13





Angled 10°

12 cm Tip Ø: 0.1 mm

No. 18131-12

Tip Ø: 0.2 mm

No. 18132-12



### V-Hook

Aids in feeding fine suture around blood vessels, works very similar to ligation aids.

### **Ligation Aids**

A handy instrument for leading a fine suture under and around a blood vessel for tying-off purposes.

Also useful for ligating peripheral nerves. Grooves toward hole help threading.











11 cm Tip Dimensions: 0,4 x 0,2 mm

No. 18052-12



10.5 cm Hole Ø: 0.4 mm

No. 18062-12



13.5 cm Hole Ø: 1 mm

No. 18062-13



13.5 cm Hole Ø: 1 mm

No. 18063-13

### **Micro Cannulation System**

This micro cannula is most helpful for quick and easy insertion in arteries and veins. It can be used as an "indwelling" catheter during long term experiments. With care, thorough rinsing and sterilization, it can be reused several times. Detailed instructions are included.

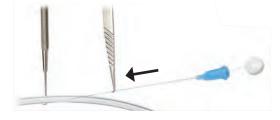


### Features

- · Biocompatible Teflon® tubing.
- Cannula size 0.33 mm OD 0.16 mm ID
- A pointed stainless steel stylus (trocar), to aid in vascular penetration and allow a maximum range of cannula manipulation during insertion.
- Contoured tip for easy insertion, fitted with shoulder for "tie-in" to prevent accidental removal.
- Female luer connection for linkage to infusion lines.

### 1 Approach

Cannulation Forceps (Item No. 18403-11) and Spinal Cord Hook (Item No. 10162-12) aid in the insertion process.



### 2 1

### Insertion

Remove trocar and advance cannula.





### Secure

Use shoulder hub and suture to "tie in" cannula to prevent accidental removal.



Instruments sold separately.

8 cm Cannula size: 0.33 mm OD - 0.16 mm ID

No. 18000-10



### **Vessel Cannulation Forceps**

These vessel cannulation forceps are useful whenever a fine plastic tube has to be introduced into a small blood vessel of almost equal size. The hollowed jaws hold the tubing securely without deforming it. The tip of the tubing is directed exactly into the vessel opening without damage to the vessel from unwanted movement.

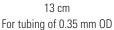












No. 11280-11

11 cm For tubing of 0.5 mm OD

No. 11281-11

11 cm For tubing of 1 mm OD

No. 11282-11



11.5 cm For tubing of 0.35 mm OD

No. 18403-11

11.5 cm For tubing of 0.6 mm OD

No. 18406-11

13.5 cm For tubing of 0.6 mm OD

No. 18406-13

No. 00574-11

11 cm

For tubing of 0.35 mm OD

No. 00608-11

11 cm

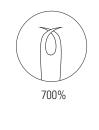
For tubing of 0.5-1 mm OD

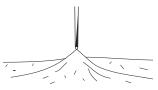
### PROBES, NEEDLE HOLDERS, WOUND CLOSURE, RETRACTORS & CLAMPS

	Probes & Hooks	129 – 134
	Spatulae	132, 135 – 138
	Spoons	139
	Pins & Holders	140 — 141
	Wound Closure	142 – 153
40	Retractors	154 — 161

### **Double Pronged Pick**

For peritoneum, pleura, endocardium, organ capsules and skin. Grasps lifts skin, tissue and dura etc.



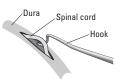


The tip consists of two very sharp, nearly horizontally opposed points. By applying gentle downward pressure and twisting slightly in a clockwise fashion, the points will embed themselves horizontally into fine membranes or skin etc., so that it may be lifted upward. This instrument also has been used successfully when separating fine tissue from an underlying area that is not to be cut.

F-S-T 18067-11 Stainless german

### **Spinal Cord Hook**





Shaped like a ligation aid and sized to isolate the spinal cord from the dura of adult mice and neonatal rats. The cord can then be cut with minimal damage to the dura.



11 cm Tip Ø: 1 mm

No. 18067-11



11 cm Tip Ø: 3 mm

No. 10162-12



### **Bonn Micro Probes**

Micro Points

Actual size



Angled 45°

13.5 cm Tip Ø: 0.025 mm

No. 10032-13

Actual size



Straight

13.5 cm Tip Ø: 0.025 mm

No. 10030-13

Actual size



**Wide Hook** 

13.5 cm Tip Ø: 0.038 mm

No. 10033-13

Actual size



**Narrow Hook** 

13.5 cm Tip Ø: 0.025 mm

No. 10031-13

300%



**Angled 90° Short** 

15.5 cm Tip Ø: 0.05 mm

No. 10063-15

300%



Angled 45°

15.5 cm Tip Ø: 0.038 mm

No. 10066-15

300%



Angled 90° Long

15.5 cm Tip Ø: 0.02 mm

No. 10065-15

### **Probes and Explorers**

### Mico Hooks



10140-01



Actual size



**Angled 80° Short** 

15.5 cm Tip Ø: 0.12 mm

No. 10140-04

Actual size



### **Angled 80° Long**

15.5 cm Tip Ø: 0.15 mm

No. 10140-03





### Straight

15.5 cm Tip Ø: 0.25 mm

No. 10140-01

Actual size



### Angled 80°

15.5 cm Tip Ø: 0.15 mm

No. 10140-02



### Micro hook

13 cm Tip Ø: 0.05 mm

No. 10064-14

175%



### **Blunt hook**

12 cm Tip Ø: 0.3 mm

No. 10062-12

175%



### **Sharp hook**

12 cm Tip Ø: 0.075 mm

No. 10061-12

### Titanium Micro Point, Y-Hook, and Spatula

These instruments are lightweight, color coded for easy identification, have an ergonomic design and a non-reflective surface.



### **Grooved Director Vessel Dilating Probe Gross Anatomy Probe** The Grooved Director is a specialized multipurpose device which is used by surgeons in different areas to probe cavities and wounds for example. MOST POPULAR NEW ITEM 200% Angled Angled 45° 12.5 cm 15 cm 13 cm Tip Ø: 0.6 mm Tip Ø: 1.2 mm with Tongue Tie No. 10088-15 No. 10160-13 No. 10290-13

### **Combination Spoon and** Spatula

### **Combination Probe and** Spatula







No. 10090-13

### Micro Spatula **Mirror Finish Micro Double-Ended** Spatula Micro Spatula Mirror finished to provide a non-stick spatula. MOST POPULAR **Curved/Angled** Straight Curved 11 cm 12 cm 13 cm 17.5 x 1 x 0.25 mm 15 x 0.8 x 0.25 mm 25 x 2 x 0.3 mm

No. 10091-12

No. 10087-12

No. 10089-11

### Iris Spatula





Curved

12 cm 20 x 1.8 x 0.3 mm

No. 10092-12



Slightly curved

13 cm 23 x 1.7 x 0.3 mm

No. 10093-13



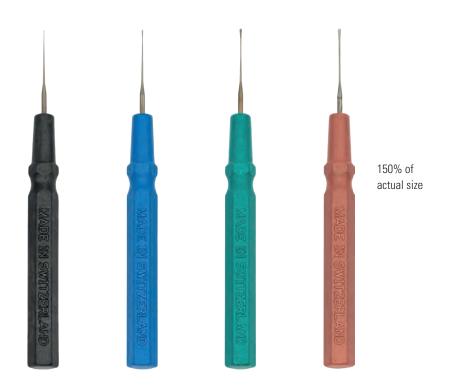
Straight

13 cm 33 x 3 x 0.4 mm

No. 10094-13

### Micro Spatula Kit

Kit with 4 pieces





Straight

6 cm

Tip Ø: Black: 0.2 mm, Blue: 0.3 mm, Green: 0.5 mm, Red: 0.7 mm

No. 10098-06

### **Mini Hippocampal Dissecting Tool**

The instrument ends are malleable to allow you to adjust their shape to the correct angle for optimal positioning.

### **Hippocampal Dissecting Tool**

The instrument ends are malleable to allow you to adjust their shape to the correct angle for optimal positioning.





No. 10099-12





No. 10099-15



**Mirror Finish Cutting Spoon** 

Non stick cutting

spoon.

## Spoon Moria

### **Mini Perforated Spoon**

Most commonly used to take embryos out of solution and handling very small organs



### **Perforated Spoon**

Most commonly used to take embryos out of solution and handling very small organs.













### Moria 1121B

12.5 cm Tip Ø: 8 mm Depth: 2 mm

No. 10321-08



Moria MC 17C

10 cm Tip Ø: 8 mm Depth: 1 mm Hole Ø: 0.8 mm

No. 10370-19



14.5 cm Tip Ø: 15 mm Depth: 3 mm Hole Ø: 0.9 mm

No. 10370-18



Moria MC 17

14.5 cm Tip Ø: 20 mm Depth: 5 mm Hole Ø: 0.9 mm

No. 10370-17



13 cm Tip Ø: 4.5 mm Depth: 0.15 mm

No. 10360-13

### Pin Holder

Light weight





17 cm Aluminum handle with nickel-plated chuck Jaw opening: 0 to 1 mm

No. 26018-17

### Pin Holder







### Moria MC1

12 cm Nickel-plated Jaw opening: 0 to 1 mm

No. 26016-12

### Insert Pins

All insert pins fit any of our pin holders. Pins are antimagnetic and acid resistant.

5 cm Stainless Steel



### Black Anodized Minutien Pins

These high quality pins are black for best visibility under high magnification and bright light.

Tip Ø: 0.0175 mm Rod Ø:0.15 mm 1.2 cm

Box of 500 pins

No. 26002-15





Stainless Steel Minutien Pins

The thinnest and finest pins available.

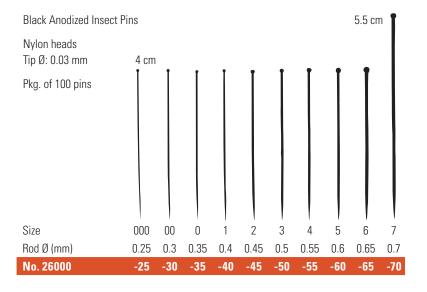


Tip Ø: 0.0125 mm Rod Ø: 0.1 mm 1.2 cm Box of 500 pins No. 26002-10 Tip Ø: 0.0175 mm Rod Ø: 0.15 mm 1.2 cm Box of 500 pins Tip Ø: 0.02 mm Rod Ø: 0.2 mm 1.2 cm

Box of 500 pins

No. 26003-15 No. 2

No. 26002-20



### Stainless Steel Insect Pins

Nylon heads Tip Ø: 0.03 mm

Pkg. of 100 pins

No. 26001	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70
Rod Ø (mm)	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7
Size	000	00	0	1	2	3	4	5	6	7

### **Etched Tungsten Micro Needles**

These tungsten micro needles are drawn to a 1 micron tip and three different rod diameters are offered. Each provides lateral stability as well as minimal spring action during manipulation. The micro needles can be used with our pin holders shown on page 140.



Tip Ø: 1 μm (0.001 mm) Box of 10 needles

Item	$\mathop{Rod}_{\scriptscriptstyle{(mm)}} \emptyset$
No. 10130-05	0.125
No. 10130-10	0.25
No. 10130-20	0.5

### Castroviejo

Micro pattern, with slightly blunted tips.

### Kalt Needle Holder

The Kalt needle holder is characterized by its extraordinary design and good handling. The closure system closes softly and securely and can be easily opened again with your thumb.







Never use a micro needle holder with needles that are too thick, as this can easily damage the fine jaws. Use only micro needles of less than 0.2 mm diameter (see page 148).





9 cm Lock: Yes

No. 12060-01

Lock: No No. 12060-02



Curved

9 cm Lock: Yes

No. 12061-01

Lock: No

No. 12061-02



Straight

Serrated: Yes 13.5 cm Lock: Yes

No. 12080-14



Serrated: Yes 13.5 cm Lock: Yes

No. 12081-14



### **Round Handled Needle Holder**

Round handles allow easy fingertip adjustments.

### **Round Handled Needle Holder** with Suture Cutter

Round handles allow easy fingertip adjustments.

### Castroviejo with Tungsten **Carbide Jaws**







**Straight** 12.5 cm Lock: Yes No. 12075-12 No. 12074-12

Curved

12.5 cm

Lock: No

Lock: No No. 12076-12



14 cm Cutting edge: 3.5 mm Lock: No

No. 12075-14



14 cm Tungsten Carbide jaws Lock: Yes

No. 12565-14

#### Halsey













13 cm Smooth Lock: Yes

No. 12001-13



13 cm Tungsten Carbide jaws Lock: Yes

No. 12501-13



12.5 cm Tungsten Carbide jaws Lock: Yes

No. 12500-12

#### Mathieu

Extra slim and narrow profile, with squeeze-lock. Facilitates excellent wrist motion for suturing.





14 cm Lock: Yes 14 cm

Tungsten Carbide jaws

Lock: Yes

No. 12510-14

No. 12010-14

#### Olsen-Hegar with **Suture Cutter**





12102-12



12 cm Cutting edge: 10 mm Lock: Yes

No. 12002-12

No. 12102-12



14 cm Cutting edge: 15 mm Lock: Yes

No. 12002-14

#### Olsen-Hegar with Suture Cutter and **Tungsten Carbide Jaws**





12512-12



12 cm Tungsten Carbide jaws Cutting edge: 10 mm Lock: Yes

No. 12502-12

No. 12512-12



14 cm Tungsten Carbide jaws Cutting edge: 15 mm Lock: Yes

No. 12502-14



#### Crile-Wood Mayo-Hegar





#### Slim Elongated Needle Holder with Tungsten Carbide Jaws

## TUNGSTEN CARBIDE



15 cm Tungsten Carbide jaws Lock: Yes

No. 12005-15

#### Ryder Mini-Select Needle Holder

This needle holder has been uniquely fashioned with tungsten carbide dust tips, giving the clamping platform an extra secure grip.







No. 12505-15

#### **Microsurgical Needles with Suture Thread Attached**

The combination of proprietary needle design technology and state-of-the-art manufacturing techniques has enabled FST to provide a microsurgical needle that is unmatched in the industry. FST microsurgical needles provide frictionless tissue penetration. They are inspected under the microscope at critical stages during the manufacturing process, and a multi-point final inspection of each suture and needle combination ensures a high quality product.

The suture-to-needle attachment is tested to higher standards than the USP specifications.

#### Features:

- Needle and thread combination comprising of nonabsorbable black nylon polyamide monofilament thread and stainless steel 3/8 circle needle. Nylon is suitable for closing ophthalmic, neurological and microvascular wounds.
- 3/8 circle precision taper point. Stainless steel needle honed under microscope by hand. Superfine round tip with flattened body to improve stability in needle holder. Easy penetration. Precise stitch placement.
- Grinding geometry and suture needle attachment are directed toward frictionless tissue penetration.
- Each needle suture combination is individually packed and sealed in a peel-open blister pack.



400% of aktual size



No. 12052-10

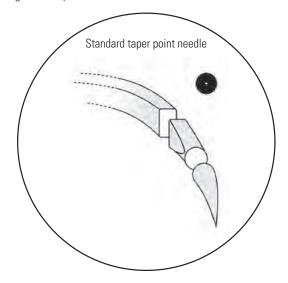


No. 12052-09



#### Sterile

Pkg. of 12 disposable units



Suture size	Suture length	Needle Ø	Needle Ø	Needle chord length	Circle	Arch	Item
11/0	10	50	0.05	3.8	3/8	3.8	No. 12052-11
10/0	10	70	0.07	3.8	3/8	3.8	No. 12052-10
9/0	15	100	0.1	5	3/8	5.1	No. 12052-09
8/0	15	140	0.14	5	3/8	6.4	No. 12052-08



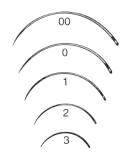
#### **Suture Needles**

- Polished stainless steel
- 3/8 curved
- Round with standard eye
- Suitable for sutures up to 0.32 mm diameter

Ø: 0.35 mm

Sterile: No

Pkg. of 12 needles



em
lo. 12050-20
lo. 12050-10
lo. 12050-01
lo. 12050-02
lo. 12050-03

#### **Silk Suture**

Silk suture has a smooth flow through tissue while maintaining knot security.

Braided Silk **Sterile: No** 

Can be ETO sterilized



Size	Suture Ø	Spool length	Item
7/0	0.05	91	No. 18020-70
6/0	0.08	23	No. 18020-60
5/0	0.12	23	No. 18020-50
4/0	0.17	23	No. 18020-40
3/0	0.22	23	No. 18020-30
2/0	0.32	23	No. 18020-20
0	0.37	23	No. 18020-00
1	0.45	23	No. 18020-01
2	0.55	23	No. 18020-02
3	0.65	23	No. 18020-03

#### For Suture Tying Forceps, see pages 79, 80 and 81.

#### **Nylon Monofilament Suture**

Nylon is known for its uniform diameter flexibility and outstanding consistent knot security.

Nylon monofilament

Non sterile Can be ETO sterilized



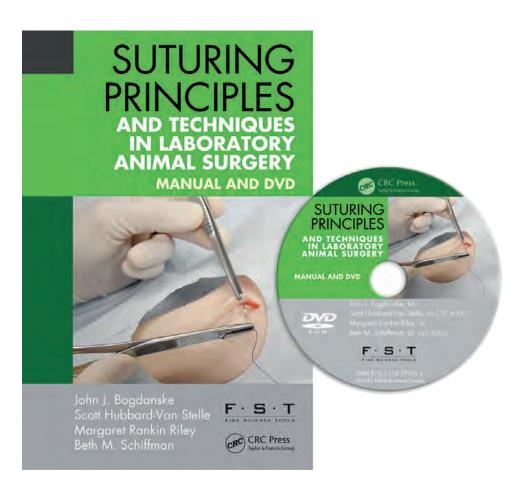
Size	Suture Ø (mm)	Spool length	Item
8/0	0.04	91	No. 18030-80
7/0	0.05	91	No. 18030-70
6/0	0.07	91	No. 18030-60
5/0	0.1	91	No. 18030-50
4/0	0.15	91	No. 18030-40
3/0	0.2	91	No. 18030-30

#### **Suturing Principles and Techniques in Laboratory Animal Surgery**

This manual introduces the reader into the basic principles, materials and surgical instruments required for suturing and wound closure used on laboratory animals. It provides descriptions and pictures portraying proper tissue handling and aseptic technique, correct hand placement and use of surgical instruments, proper needle placement on needle holders, and provides an in-depth explanation of various suture patterns and associated principles for proper knot tying during wound closure.

The included DVD provides descriptive narrative and step-by-step video demonstrations for each of the suturing techniques.

For your convenience all instruments which are used for the demonstrations are listed with their FST item numbers



No. 23005-10

#### **Michel Suture Clips**

- Anti-magnetic
- Acid-resistant stainless steel
- Pkg. of 1.000 clips

Size (mm)	Item
7.5 x 1.75	No. 12040-01
11 x 2	No. 12040-02
12 x 2.5	No. 12040-03



#### **Applying Forceps**



12.5 cm For clip sizes 12040-02 and 12040-03

No. 12018-12

#### **Applying and Removing Instruments**



Angled

13 cm For clip size 12040-01

No. 12029-12

Curved

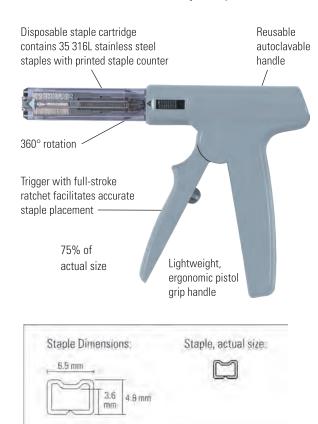
13 cm For clip sizes 12040-02 and 12040-03

No. 12028-12

#### Reloadable Skin Stapler with Rotating Head

The 360° degree swivel nose and unique design offers maximum visibility at the delivery point. The stainless steel staples are non-sterile and feature a patented staple design which make for quick and easy removal. The disposable staple cartridge includes a printed staple counter.

The handle is reusable and autoclavable. Staples are non-sterile. Components sold separately or as a kit.



Surgical staple kit

- 1 Handle
- 1 Remover
- 12 Disposable staple cartridges

#### No. 12030-20

Single disposable cartridge 35 staples per cartridge

#### No. 12030-22

12 disposable cartridges 35 staples per cartridge

#### No. 12030-23

Handle

No. 12030-01

#### **Surgical Staple Remover**

Compatible with Reloadable Skin Stapler with Rotating Head and Manipler® Skin Stapler.



#### Manipler® Skin Stapler

Quality, slim, lightweight design with consistent actuation and staple count indicator.

#### Disposable, sterile and not autoclavable.



#### AutoClip® System

The AutoClip® System is a safe, secure method of wound closure. Faster and easier than suture, this system is perfect when staples may be too thin to provide adequate closure. **Non-sterile. Components sold separately or as a kit.** We recommend using wet steam sterilization at 120 – 125°C for at least 30 minutes in an autoclave to sterilize the device.







Clips



Remover

## Applier

#### AutoClip® Kit

- 1 Applier
- 9 mm clips (100)
- 1 Remover
- Storage case

No. 12020-00

AutoClip® applier 11.5 cm

No. 12020-09

AutoClip® clips 9 mm Pkg. of 100 clips

No. 12022-09

AutoClip® clips 9 mm Pkg. of 1000 clips

No. 12022-19

AutoClip® remover 12.5 cm

No. 12023-00

Guthrie	Fine Retractor	Blair	Fomon
Extra delicate pattern.			
F-S-T 17021-13.	F-S-T 17023-13	F:S:T 17022-13	80% of actual size
2.5 mm	6 mm	6 mm	13 mm
13 cm 2 Blunt	13.5 cm 2 Blunt	13.5 cm 4 Blunt	17 cm 2 with 2 mm Ball each tip
No. 17021-13	No. 17023-13	No. 17022-13	No. 17020-17

#### **Slide Retractor with Blades**



2 mm
7 4 mm

2 cm Max. spread: 1 cm

No. 17004-03

#### Mini-Goldstein





2 cm Max. spread: 0.5 cm 3 x 3 Sharp teeth

No. 17002-02

#### Mini-Colibri





2 cm Max. spread: 1 cm

No. 17000-01

#### Slide Retractor with Teeth





2 cm Max. spread: 1 cm 2 x 2 Blunt teeth

No. 17005-03

#### Goldstein





3 cm Max. spread: 1.8 cm 3 x 3 Sharp teeth

No. 17003-03

#### Colibri



17000-03



3 cm Max. spread: 1.5 cm

No. 17000-03

4 cm Max. spread: 1.5 cm

No. 17000-04



3 cm Max. spread: 1.2 cm

No. 17000-02

#### **Speculum**



#### **Moria 7699**

4.5 cm Max. spread: 3.5 cm Curved

No. 17370-53

#### Colibri



#### Moria 6346D

3.4 cm Max. spread: 1.5 cm

No. 17300-02



#### Moria 6346C

3.3 cm Max. spread: 1.5 cm

No. 17300-03



#### Moria 6346B

3.5 cm Max. spread: 2 cm

No. 17300-04

#### **Fine Adjustable Wire Retractor**



5 cm Max. spread: 3.5 cm Curved

No. 17004-05

#### Agricola





4 cm Max. spread: 3.5 cm 3 x 3 Sharp teeth

No. 17005-04



**Alm Retractor with Blades** 





**Alm Retractor with Blunt Teeth** 





7 cm Max. spread: 4 cm Slightly curved down

No. 17010-07



7 cm Max. spread: 4 cm Slightly curved 4 x 4 Blunt

No. 17008-07



7 cm Max. spread: 4 cm Slightly curved 4 x 4 Blunt

No. 17009-07



7.5 cm Max. spread: 4.5 cm Slightly bent

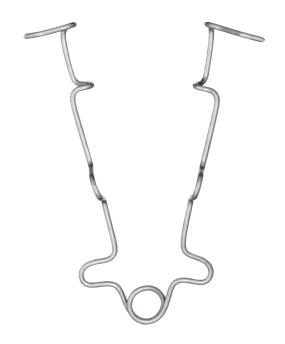
No. 17009-08

#### **Spring-Loaded Retractor**

Curved atraumatic blades









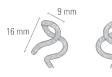
5.5 cm Max. spread: 3 cm 14 x 10 mm

No. 17006-05



8 cm Max. spread: 4 cm 22 x 16 mm

No. 17007-08



8 cm Max. spread: 2.5 cm

No. 17001-07

Heiss Gelpi







10 cm Max. spread: 2.3 cm 4 x 4 Blunt teeth

No. 17011-10



10 cm Angled down Max. spread: 3 cm 1 x 1 Sharp teeth

No. 17017-10







Straight

2 x 3 Blunt teeth 11 cm Max. spread: 4 cm

No. 17012-11

Straight

3 x 4 Blunt teeth 13 cm Max. spread: 4 cm

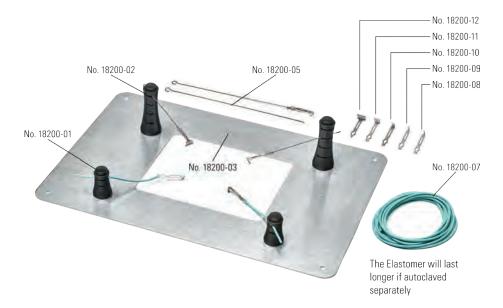
No. 17012-13



Angled down 3 x 3 Blunt teeth

11 cm Max. spread: 3 cm

No. 17018-11



#### **Magnetic Fixator Retraction System**

This Small Animal Retraction System simplifies set-up procedure and provides the examiner with an excellent overview of the operative site. It consists of three components: Base Plate (Nos. 18200-03 & 18200-04); Fixators (Nos. 18200-01 & 18200-02); and Retractors (Nos. 18200-05 through 18200-12).

The Base Plates are made from magnetic stainless steel and are available in two sizes. The surface is nonreflective and both plates have a window in the center which allows the animal contact with body temperature control systems. The window sizes are  $10 \times 13 \text{ cm}$  for the small base plate and  $15 \times 25 \text{ cm}$  for the large.

The Fixators are movable anchors made from anodized aluminum with a surgical grade rare earth magnet in the base for attachment anywhere on the Base Plate. The magnets do not interfere with lab electronics and can be used in close proximity (3 cm) to ferro-magnetic items. They incorporate pushbutton-activated spring locks that grip either the Wire or Elastomer Retractors.

The Retractors are interchangeable Retractor Tips (Nos. 18200-08 through 18200-12) which attach to either Retractor Wire (Nos. 18200-05 & 18200-06) for static retraction or to Elastomer (No. 18200-07) for dynamic retraction. The Retractor Tips are light and atraumatic to delicate tissue or membrane. **All system components are autoclavable.** 

#### Kit for animals up to 200 g

Includes:

- 1 Small base plate (No. 18200-03)
- 2 Short fixators (No. 18200-01)
- 1 Tall fixator (No. 18200-02)
- 1 Elastomer, 2 m roll (No. 18200-07)
- 1 Package of retractors, blunt, 1 mm wide (No. 18200-09)
- 1 Package of retractors, blunt, 2.5 mm wide (No. 18200-10)

No substitutions

No. 18200-20

### Kit for animals from 200 g up to 5 kg

Includes:

- 1 Large base plate (No. 18200-04)
- 2 Short fixators (No. 18200-01)
- 2 Tall fixators (No. 18200-02)
- 1 Elastomer, 2 m roll (No. 18200-07)
- 1 Package of retractors, blunt, 2.5 mm wide (No. 18200-10)
- 1 Package of retractors, blunt, 5 mm wide (No. 18200-11)

No substitutions

No. 18200-50

#### **Individual parts:**

Short fixator, 3 cm high Fach

No. 18200-01

Tall fixator, 6 cm high Fach

No. 18200-02

Small base plate, (20 x 30 cm) Each

No. 18200-03

Large base plate, (25 x 35 cm) Each

No. 18200-04

Wire handles, 10 cm long Pkg. of 10

No. 18200-05

Wire handles, 14 cm long Pkg. of 10

No. 18200-06

Elastomer, 2 m roll

No. 18200-07

Sharp retractors, 1 mm wide Pkg. of 10

No. 18200-08

Blunt retractors, 1 mm wide Pkg. of 10

No. 18200-09

Blunt retractors, 2.5 mm wide Pkg. of 10

No. 18200-10

Blunt retractors, 5 mm wide Pkg. of 10

No. 18200-11

Blunt retractors, 7.5 mm wide Pkg. of 10

No. 18200-12

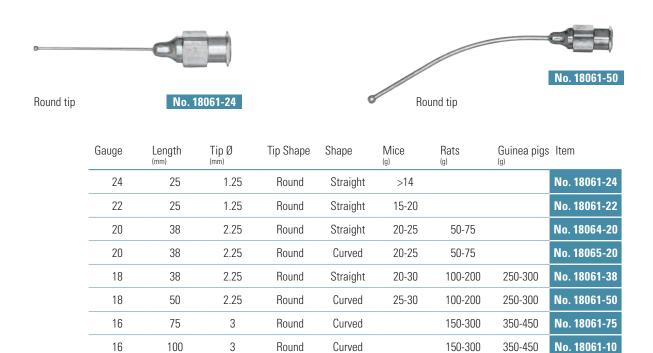
# ACCESSORIES & INSTRUMENT CARE

Animal Accessories	163 – 168
Instrument Care & Accessories	169 – 180
Surgical Accessories	181 – 184
Laboratory Accessories	185 — 197



#### **Reusable Gavage Feeding Needles**

Stainless steel feeding needles with luer lock hub. Also ideal for transcardiac perfusions with a fixative. The needles come with a round tip.



These needles come with a barrel tip.





		Barrel	tip		No. 18060-2	20	
Gauge	Length (mm)	Tip Shape	Shape	Mice (g)	Rats (g)	Guinea pigs	Item
24	25	Barrel	Straight	>14			No. 18060-24
22	25	Barrel	Straight	15-20			No. 18060-22
20	30	Barrel	Straight	20-25	50-75		No. 18060-20
20	38	Barrel	Straight	20-25	50-75		No. 18063-20
20	38	Barrel	Curved	20-25	50-75		No. 18067-20
18	38	Barrel	Straight	20-30	100-200	250-300	No. 18060-18
18	50	Barrel	Curved	25-30	100-200	250-300	No. 18067-50
16	75	Barrel	Curved		150-300	350-450	No. 18067-75
16	100	Barrel	Curved		150-300	350-450	No. 18067-10

Pkg. of 5 needles

#### Single Use Gavage Feeding Needles

These economical feeding needles feature plastic luer hubs with silicone tips. They are nontoxic and nonpyrogenic. Needles can be easily formed to any desired shape. **Sterile.** 

melleable to any angle

Plastic luer hubs

Sterile silicone tips

Gauge	Length (mm)	Tip Ø	Mice (g)	Rats (g)	Guinea pigs	Item
20	38	1.75	20-25	50-75		No. 18061-20
18	50	2.5	25-30	100-200		No. 18061-18
15	75	3		200-350	400-600	No. 18061-15

No. 18061-20

#### **Disposable Flexible PTFE Feeding Needles**

These affordable needles feature flexible PTFE tube with silicone tip and plastic luer hub, delivered in sterile pouches. They are very flexible, and translucent for easy confirmation of reagent delivery. The soft silicone tips are non-toxic and non-pyrogenic and ensure that no damage occurs during the insertion. **Sterile**.

#### Pkg. of 5 needles



Gauge	Length (mm)	Tip Ø	Mice (g)	Rats (g)	Guinea pigs	Item
20	38	1.8	20-25	50-75		No. 18961-20
18	38	2	20-30	100-200	250-300	No. 18961-18
17	52	2.4	25-30	100-200	250-300	No. 18961-17
15	78	2.6		200-350	400-600	No. 18961-15
18	75	2	25-30	150-250	250-300	No. 18961-75
17	85	2.4	25-30	150-250	250-300	No. 18961-85

#### GenoPunch

The interchangeable GenoPunch aids in the fast and simple collection of the 2 mm tissue sample for DNA analysis and/or genotyping. FST Exclusive Item. **Autoclavable**.







Microtubes not included.

#### GenoPunch includes

- 1 GenoPunch
- 1 0.5 ml tube holder
- 1 1.6 ml tube holder
- 1 Screwdriver
- 4 Screws

FST does not supply microtubes.



11.5 cm Stainless Steel and Anodized Aluminum Punch Ø: 2 mm

No. 24215-02

#### **Blue Ear Punch**

The Ear Puncher relieves stress on the wrist during ID marking as it requires only a very gentle pressure to cut a hole. The stainless steel puncher has a sloped edge that provides a cut rather than a punch, which minimizes discomfort. The ear puncher should be lubricated to improve longevity. **Autoclavable**.





14 cm Punch Ø: 1 mm

No. 24916-01

14 cm Punch Ø: 2 mm

No. 24916-02

#### **Ear Punch with Replaceable Tip**

Designed to ensure a fast and clean punch, this ear punch is lightweight and fits comfortably in the palm of your hand. The tip is replaceable. **Autoclavable.** 



#### **Handle and Tip**

11.5 cm Anodized aluminum handle and stainless steel tip Punch Ø: 2 mm

No. 24213-02

#### **Replacement Tip**

Punch Ø: 2 mm

No. 24213-12

#### **Ear Punch**

Designed to ensure a fast and clean punch, this ear punch is lightweight and fits comfortably in the palm of your hand. FST Exclusive Item. **Autoclavable**.



#### 11.5 cm Stainless Steel and anodized aluminum Punch Ø: 2 mm

No. 24214-02

#### **Finger Loop Ear Punch**

This ear punch provides stability and control for researchers using the numbering system. The 1 mm ear punch offers greater numbering variations and/or patterns.



10.5 cm Punch Ø: 2 mm

No. 24212-02

Punch Ø: 1 mm

No. 24212-01



#### **Marking Pen**

The Marking Pen was developed for easy, long lasting identification of laboratory animals. The markers contain no harmful chemicals and instead nontoxic pigment approved by the Japanese Ministry of Health for use in food, drugs and cosmetics. It is intended for use on the fur and not the skin and will last for 6-12 weeks.

CAUTION: Color can stain skin and clothing. The use of gloves and lab coats is recommended. These colors will not work on black fur.





No. 24202-06





No. 24202-01











Standard Tip 15 x 10 x 10 mm Black 15 ml

No. 24202-16



Standard Tip 15 x 10 x 10 mm Blue 15 ml

No. 24202-12



Standard Tip 15 x 10 x 10 mm Green 15 ml

No. 24202-11



Standard Tip 15 x 10 x 10 mm Red 15 ml

No. 24202-14



Standard Tip 15 x 10 x 10 mm Yellow 15 ml

No. 24202-13



Standard Tip 15 x 10 x 10 mm Orange 15 ml

No. 24202-15

#### **Surgical Skin Marker**

This marker features a versatile tip for precise fine (0.2 mm) line marking, or when held at an angle, a broad (2 mm) line marking. The marker's violet ink is nontoxic, non-tattooing and surgical prep-resistant.

Markings can be removed from the skin with isopropyl alcohol. A six-inch ruler calibrated in both centimeters and inches is included





50% of actual size

No. 18000-30

#### **Self Piercing Ear Tags**

These ear tags come numbered from 1-1000. The silver colored ear tags are made of monel and the laser marked numbers provide high visibility making them easy to read. Once applied, tags seal and cannot be removed, providing an easy to use, permanent identification method. These ear tags are safe for use in salt water.





## Custom alphanumeric sequences and numbers above 1000 are available by special order.

Customized ear tags available in packages of 100 or 500. The following markings are possible: 1 to 6 numbers only or 1 to 6 letters and numbers.

For special order, use item No. 70000-10 and indicate sequence. Please allow 4 to 5 weeks for delivery.





Picture similar

Alloy: Monel 0.8 cm No. 1-100 Far tags - #s 1 t

No. 24221-10

Ear tags - #s 1 to 100

No. 24221-50

Ear tags - #s 1 to 500

Alloy: Monel

0.8 cm

No. 1-500

Alloy: Monel 0.8 cm No. 501-1000

Ear tags - #s 501 to 1000

No. 24221-90

#### **Animal Microtattoo System**

A quick, efficient and affordable method of permanently identifying laboratory animals (mice as early as 1 day old). Designed and tested by laboratory animal technicians, the system utilizes a hypodermic needle at one end of a stainless steel forceps and a small metal cup containing green tattoo paste at the other side of the forceps.

By squeezing the forceps together, the needle penetrates the toe, footpad or ear of the animal and injects a deposit of green tattoo paste into the animal. A grid location pattern provided enables a numbering system that extends over 1 million.

Use of the microtattoo system is humane and in compliance with regulatory agencies for the care and use of laboratory animals. Detailed instructions are included.

#### Both the microtattoo forceps and green tattoo paste are autoclavable.

Animal microtattoo system (No. 24201-00) includes:

- 1 Pair plated steel microtattoo forceps
- 1 Tube (1 oz.) of green tattoo paste
- 1 Aluminum planchette
- 2 Hypodermic needles
- 1 Plastic holding case



Animal microtattoo system 13 cm

No. 24201-00



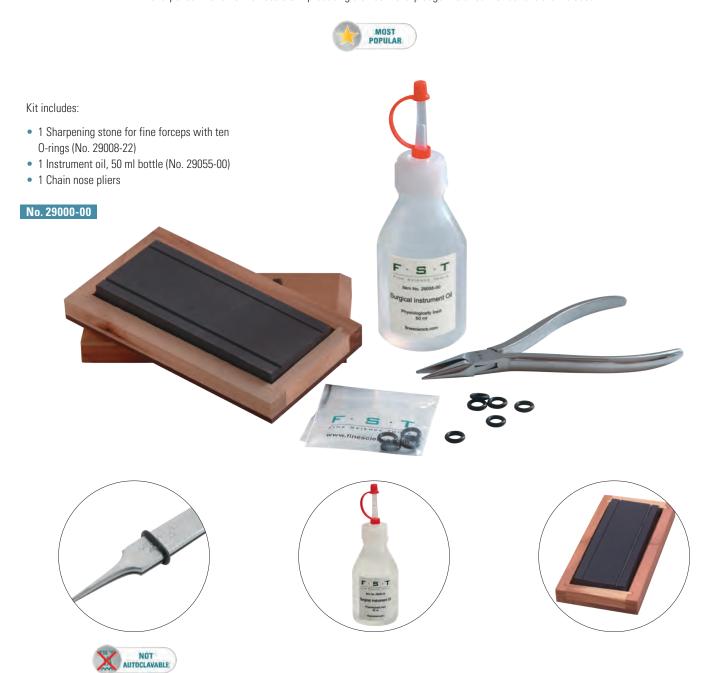
Green tattoo paste 29.6 ml

No. 24201-01



#### **Fine Forceps Repair Kit**

Realign and repair fine forceps with this convenient kit. Bent forcep tips can be restraightened with the chain nose pliers. The sharpening stone has two grooves, 1.6 mm and 0.8 mm, to assist in resharpening the forcep tips. O-rings clamp the forceps shut to ensure that both shanks are equally aligned and sharpened. Instrument oil assists in producing a smooth sharp edge. Detailed instructions are included.



#### **O-Rings for Forceps**

These rubber O-rings fit our forceps and keep them closed with variable degrees of pressure on the tips.

Pkg. of 10

No. 11200-00

#### **Instrument Oil**

Physiologically inert oil for lubricating surgical instruments, box locks, ratchets and any overlapping joints.

50 ml bottle

No. 29055-00

#### **Sharpening Stone for Fine Forceps**

This natural Arkansas stone assists in resharpening the tips of fine forceps. The stone has two grooves, 0.8 mm and 1.6 mm and comes in a cedar box with ten 0-rings.

12.5 x 6.5 x 3 cm

No. 29008-22

#### **Instrument Marking Tape**

Organize instruments quickly and easily with this economical, non-toxic, pressure sensitive tape. Color is unaffected by boiling, cold sterilization or autoclaving. 8 colors available. **Autoclavable.** 



Color	Roll length	Tape width	Material	Item
Green	290	0.6	Vinyl	No. 29071-01
Blue	290	0.6	Vinyl	No. 29071-02
Yellow	290	0.6	Vinyl	No. 29071-03
Red	290	0.6	Vinyl	No. 29071-04
White	290	0.6	Vinyl	No. 29071-05
Black	290	0.6	Vinyl	No. 29071-06
Orange	290	0.6	Vinyl	No. 29071-08
Purple	290	0.6	Vinyl	No. 29071-09

0.6

## **⊕** NEW ITEM

#### Instrument Marking Tape 8 Assorted Colors

Organize instruments quickly and easily with this economical, non-toxic, pressure sensitive tape. Color is unaffected by boiling, cold sterilization or autoclaving. Includes 8 assorted color rolls: Yellow, Red, Black, White, Green, Brown, Purple, Blue and Orange. **Autoclavable.** 



#### **Instrument Marking Tape**

Organize instruments quickly and easily with this economical, non-toxic, pressure sensitive tape. Color is unaffected by boiling, cold sterilization or autoclaving. 9 colors available. **Autoclavable.** 



Color	Roll length	Tape width	Material	Item
Green	510	0.6	Vinyl	No. 29070-01
Blue	510	0.6	Vinyl	No. 29070-02
Yellow	510	0.6	Vinyl	No. 29070-03
Red	510	0.6	Vinyl	No. 29070-04
White	510	0.6	Vinyl	No. 29070-05
Black	510	0.6	Vinyl	No. 29070-06
Brown	510	0.6	Vinyl	No. 29070-07
Orange	510	0.6	Vinyl	No. 29070-08
Purple	510	0.6	Vinyl	No. 29070-09

No. 29080-01

Vinyl

#### **Self Sealing Sterilization Pouches**

Preformed pouches with self adhering tape are blue tinted on one side for visualization of contents and paper-backed on the other side. Pouches will work with either steam autoclave or ethylene oxide sterilization.

#### **Material properties:**

- Protects instruments during sterilization.
- Provides sterile storage until use.
- Write on pouches for easier identification during sterilization.



 $$10\ x\ 18\ cm$$  For instruments up to 13 cm long

Pkg. of 100 pouches

No. 28000-07

 $$13\ x\ 26\ cm$$  For instruments up to 23 cm long

Pkg. of 100 pouches

No. 28000-10

 $$18\ x\ 30\ cm$$  For instruments up to 26 cm long

Pkg. of 100 pouches

No. 28000-12

#### **Hot Bead Sterilizer**

The sterilizer provides a safe, effective and convenient method for sterilizing your surgical instruments prior to and during surgery or tissue culture. Without using potentially dangerous gases flames or chemicals, you can ensure that your instruments will be free of pathogens and microbial contaminants.

The beads take 15–20 minutes to reach 240°C to 270°C (464°F to 518°F), then the sterilizer is ready for use. The temperature is thermostatically maintained and the unit can be left on all day. Instruments require approximately 20 seconds of contact with the beads for complete sterilization. The sterilizer is safe to use even in laminar flow hoods.

Sterilization test results conducted by the Pasteur Institute in Lille, France, are available upon request. Available in 110V and 220V. CE Certified and UL Approved.

#### Sterilizer includes:

- Sterilizer unit
- 1 Bag of glass beads
- 1 Dust cover for well
- 1 Small heat-tempered glass dish for small objects (only with FST 250)



FST 250 shown.

60 % of actual size

Instruments not included.

#### **FST 250 Sterilizer**

Well Ø: 4 cm Well depth: 8 cm Well volume: 100 ml Total unit size: 14.5 x 12.5 x 13.5

No. 18000-45

#### FST 350 Sterilizer

Well Ø: 4 cm Well depth: 14 cm Well volume: 175 ml Total unit size: 20.5 x 12.5 x 13.5

No. 18000-50

#### Replacement glass beads for FST 250

Weight: 150 g No. 18000-46

#### Replacement glass beads for FST 350

Weight: 300 g No. 18000-51

#### Micro Bead Sterilizer with Glass Beads

Micro Bead Sterilizer is ideal for the sterilization of small and large research tools (forceps, scissors, etc.). When the chamber is filled with the included glass beads, high temperatures (up to 300° C) can be used to eliminate the presence of bacteria, spores and other micro-organisms.

#### **Small Sterilizer 110V**

Well Ø: 4 cm Well depth: 8 cm Well volume: 100 ml Total unit size: 14.5 x 15.5 cm

#### No. 18090-45

#### **Small Sterilizer 220V**

Well Ø: 4 cm
Well depth: 8 cm
Well volume: 100 ml
Total unit size: 14.5 x 15.5 x 15.5 cm

No. 18090-46

#### Replacement glass beads for small sterilizer

Weight: 150 g

No. 18000-47



#### **Tall Sterilizer 220V**

Well Ø: 4 cm Well depth: 14 cm Well volume: 175 ml Total unit size: 14.5 x 15.5 x 21.5 cm

No. 18090-51

#### Replacement glass beads for tall sterilizer

Weight: 300 g

No. 18000-52

#### **Tall Sterilizer 110V**

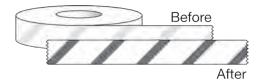
Well Ø: 4 cm
Well depth: 14 cm
Well volume: 175 ml
Total unit size: 14.5 x 15.5 x 21.5 cm

No. 18090-50

#### **Autoclave Tape**

Tape will permanently indicate diagonal stripes after exposure to steam autoclave temperature between 121°C and 130° C during a 40-60 minute time period. Use with sterilization pouches, sterilization wraps and sterilization cases.



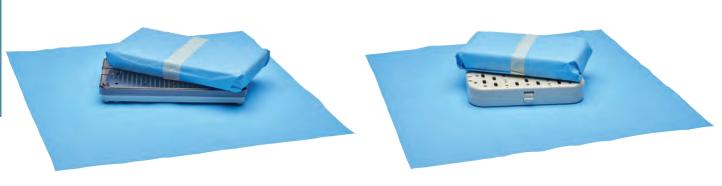


2 cm x 55 m

No. 28001-02

#### **Disposable Sterilization Wraps**

These biodegradable cellulose fiber wraps are resistant to tears and conform easily to maintain a breathable yet impervious barrier to airborne bacteria, saline, blood and water. Wrapping your instrument case securely will ensure the sterility of your instruments until ready for use. Available in two sizes.



Cases not included.

38 x 38 cm Pkg. of 25 wraps

No. 28015-15

51 x 51 cm Pkg. of 25 wraps

No. 28020-20

#### Silicone Mat

High quality, extra soft mat for safe and secure placement of delicate instruments. This mat can easily be cut along the premarked grooves to fit in various sized instrument cases. **Autoclavable.** 



30 x 20 cm

No. 20325-00

#### **Magnetic Sterilization Mat**

Used during sterilization and for safe anti-slip placement around surgical settings. **Autoclavable.** 



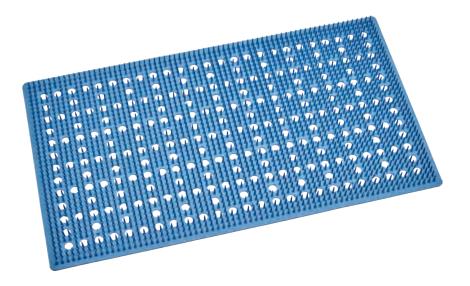
Instruments not included.

30 x 20 cm

No. 20350-00

#### Silicone Mat

Large, economical silicone mat. **Autoclavable.** 



46 x 25 cm

No. 20325-10

#### **Sterilization Container**

This plastic sterilization container includes a silicone mat for safe placement of instruments. Perforated top is clear for visual identification of instruments. Suitable for autoclave or ethylene oxide sterilization.





19 x 10 x 2 cm

No. 20810-01

27 x 16 x 4 cm

No. 20810-02

#### **Two Tiered Sterilization Container**

This plastic sterilization container has two tiers of silicone slots that will accommodate up to 12 different instruments. Hinged top and bottom lock tight. Container is perforated. Suitable for autoclave or ethylene oxide sterilization.

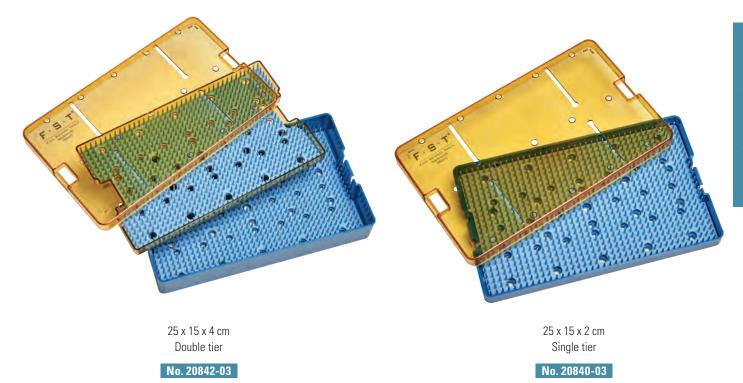


No. 20820-00

#### **Sterilization Container**

This sterilization container is made from Ultem® polymer to ensure strength and long lasting durability. The transparent perforated lid provides easy identification of your surgical instruments. Silicone mat is included for a safe and secure hold. Trays are also stackable for convenience. **Suitable for autoclave or ethylene oxide sterilization.** 





#### **Dual Clasping Stainless Steel Sterilization Container**

This container will assist in the sterilization and storage of your fine surgical instruments. It comes with a custom fit silicone mat to keep instruments in place while the sterilizing process and storage. The textile filters are necessary for keeping instruments sterile while they remain in the container. Suitable for autoclave or ethylene oxide sterilization.



30 x 14 x 4 cm

5 Long-term textile filters

One Long-term textile filter

No. 20850-00

No. 20850-10

No. 20850-11

#### **Utility Instrument Case**

Comes with a silicone mat for safe placement of instruments. Case and silicone insert are autoclavable but should not be used for sterilizing surgical instruments.









#### **Colored Aluminum Cases**

This instrument case comes with a spiked silicone mat for secure storage of surgical instruments. Four colors available but may vary due to lot to lot variations.

The case and silicone insert are autoclavable but should not be used for sterilization of surgical instruments.



#### **Instrument Case**

This plastic case is compact, safe, secure, and slotted for placement of individual surgical instruments, aiding in the prevention of tip damage. Seven colors available. **Case is autoclavable but should not be used for sterilizing surgical instruments.** 



# **INSTRUMENT STORAGE**

# **Roll Up Travel Case**

Vinyl dissection roll up case with Velcro strap to hold the case closed. Holds up to 10 tools, one ruler holder, and one Velcro sealed pouch. Instruments not included.

36 x 23 cm (unfolded) Black Vinyl

No. 20831-10



# **Instrument Tip Protectors**

These tip protectors are a convenient, color-coded way to protect surgical instrument tips and edges. They provide exceptional protection and are vented to prevent rusting from condensation. Instrument tip protectors are recommended during handling, storage and sterilization. Autoclavable.



1.6 x 19.1 mm Pkg. of 25 Material: Plastisol

No. 29060-01



4.8 x 25.4 mm Pkg. of 25 Material: Plastisol

No. 29060-05



2 x 19 mm Pkg. of 25 Material: Plastisol

No. 29060-02



2.8 x 19.1 mm Pkg. of 25 Material: Plastisol

No. 29060-03



3.2 x 25.4 mm Pkg. of 25 Material: Plastisol

No. 29060-04



9.5 x 25.4 mm Pkg. of 25 Material: Plastisol

No. 29060-06











Assorted pack, five of each size Pkg. of 30 Material: Plastisol

No. 29060-00

# **Double Tip Protectors**

These vented tip protectors are designed to hold hemostats and rongeurs firmly while allowing the jaws, box hinge and tips to stay open for thorough sterilization. Autoclavable.



12.7 x 2 mm Pkg. of 10 Material: Plastisol

No. 29066-01



9 x 25.5 mm Pkg. of 10 Material: Plastisol

No. 29066-02



15 x 25 mm Pkg. of 10 Material: Plastisol

No. 29066-03



25 x 26 mm Pkg. of 10 Material: Plastisol

No. 29066-04



Assorted pack, three of each size Pkg. of 12 Material: Plastisol

No. 29066-00



#### **Stainless Steel Burrs**

Length: 44 mm Shaft Ø: 2.3 mm Pkg. of 10 burrs

Tip Ø	ltem
0.7 *	No. 19008-07
0.9 **	No. 19008-09
1.4	No. 19008-14

<sup>\*</sup> Use this size for screws No. 19010-10 (page 64).

#### **Carbon Steel Burrs**

Length: 44 mm Shaft Ø: 2.3 mm Pkg. of 10 burrs



<sup>\*</sup> Use this size for screws No. 19010-10 (page 64).

# **Tungsten Carbide Burrs**

Length: 44 mm Shaft Ø: 2.3 mm Pkg. of 5 burrs



<sup>\*</sup> Use this size for screws No. 19010-10 (page 64).

# **Stainless Steel Trephines**

Side opening for clearing of material.



# **Stainless Steel Circular Saw**

For cutting bone and other hard substances. Attaches to mandrel (No. 18000-18), on the right side.



Ø: 1.6 cm Thickness: 0.1 mm Pkg. of 10 saws

No. 18000-20

# Stainless Steel Mandrel

Screw allows attachment of discs and circular saws for use with high speed drills.



Length: 45 mm Shaft Ø: 2.3 mm

No. 18000-18

<sup>\*\*</sup> Use this size for screws No. 19010-00 (page 64).

<sup>\*\*</sup> Use this size for screws No. 19010-00 (page 64).

<sup>\*\*</sup> Use this size for screws No. 19010-00 (page 64).

# **High Temperature Cautery Kit**

This high temperature cauterizer is a great alternative to disposable cautery units. Temperature at tips is approximately 1000°C (1832°F). Replacement cautery tips are available. Not autoclavable.







Plastic body

Stainless steel tips: 0.2 mm Ø

Operation temperature: 1000°C (1832°F)

Total weight: 70 g

Length: 16 cm (without tip)

# Cautery kit includes:

- 1 Cautery handle
- 2 AA batteries
- 2 Standard tips
- 1 Storage case
- 2 Fine tips

65% of actual size



Replacement tips Single use

Straight / Standard Sterile: Yes

Box of 10 tips



Replacement tips Single use

Straight / Fine Sterile: Yes

Box of 10 tips

No. 18010-02

# **Low Temperature Cautery Kit**

This low temperature cautery kit is a great alternative to disposable cautery units. Temperature at the tips is approximately 649°C (1200°F). Replacement cautery tips are available. Not autoclavable.





Plastic body Stainless steel tips: 0.2 mm Ø Operation temperature: 649°C (1200°F) Total weight: 60 g Length: 12 cm (without tip)

#### Cautery kit includes:

- 1 Cautery handle
- 1 AA battery
- 2 Fine tips
- 1 Storage case
- 2 Elongated fine tips



Replacement tips Single use

Straight / Fine Sterile: Yes

Box of 10 tips

No. 18019-01



Replacement tips Single use

Elongated Straight / Fine Sterile: Yes

Box of 10 tips









No. 18019-02



# **Small Vessel Cauterizer**

This small hand-held unit keeps bleeding to a minimum and therefore provides a surgical field clear of clamps and hemostats. The cauterizer should be activated momentarily so the delicate tips do not burn out. Temperature at tips is approximately 1000°C (1832 °F). Replacement cautery tips are available. **Autoclavable.** 



Heavy gauge stainless steel body Platinum-iridium tips: 0.3 mm Ø Total weight: 100 g Length: 13.5 cm (without tip)

Cautery kit includes:

- 1 Cautery handle
- 2 AA Batteries
- 1 Straight fine tip
- 1 Storage case
- 1 Angled fine tip



Remove batteries before autoclaving.

80% of actual size



Replacement tip Reusable Straight / Fine

No. 18000-01



Replacement tip Reusable Angled / Fine

No. 18000-02



Replacement tip Reusable Straight / Fine

No. 18000-03



Replacement tip Reusable Straight knob

No. 18000-04

Cautery Kit

No. 18000-00

# **Neuro Punches**

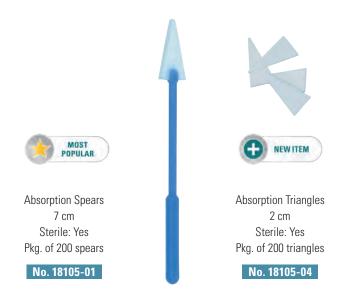
N.I.H. style neuro punches for punch removal of frozen brain microregions.



Item	Length (cm)	Gauge	OD (mm)	ID (mm)
No. 18036-24	4.2	24	0.61	0.31
No. 18036-22	4.5	22	0.7	0.41
No. 18036-19	4.5	19	1	0.69

# Absorption Spears and Triangles

These synthetic surgical sponges absorb fluids twice as fast as the best cotton sponges and have three times their fluid-holding capacity. They are made from strong, soft, lint-free biocompatible-proven material that is nonirritating to delicate tissue and leaves no fibrous residue that might cause wound contamination. The Absorption Spears are sterilized by radiation.



# **Sample Corers**

For quantitative analysis. Comes with plunger.

8.5 cm





ID (mm)	OD (mm)	Gauge	Item
0.35	0.8	21	No. 18035-35
0.5	1	19	No. 18035-50
0.8	1.45	17	No. 18035-80
1	1.8	15	No. 18035-01
2	3	11	No. 18035-02
3	4	8	No. 18035-03
5	6	4	No. 18035-05

# Fiber Optic Swabs



Straight 15 cm Tip Ø: 2.5 mm Pack of 100

No. 18106-01

# Micro Cleaning Brush



7 cm Nylon Bag of 25

No. 18196-10



# **Miniature File Set**

Comes with 8 different file profiles in a vinyl pouch.





# **Instrument Sharpening Stones**

10 cm Carbon Steel No. 30076-14

Natural Arkansas oil stones feature unequaled fineness, hardness and structural density. When used with mineral oil, they will produce a sharper cutting edge.



Square stone **No. 29008-01** 

6 mm x 9 cm Triangular stone

No. 29008-12

#### 4-in-1 Screwdriver

With 4 hardened, interchangeable blades stored in handle: 1.5, 2, 2.5, and 3 mm.





Handle 9.5 cm, with attachment 11.5 cm Nickel handle

No. 30051-10

# **Ceramic Blade Cutter**

Ceramic edge stays sharp 100 times longer than a steel edge. Rust and corrosion free. No trace metal contamination. **Autoclayable.** 



# Replacement blade

Straight

13 cm Cutting Edge: 58 mm

No. 10025-70

Straight

Cutting Edge: 58 mm

No. 10025-71

# **Utility Scissors**

These scissors are extremely hard (54 on the Rockwell scale). Useful for cutting tin or aluminum sheets, bone, plastics, etc. The strong, 3 mm thick blades are magnetic. The plastic handles are anatomically shaped.





21 cm Stainless steel with plastic handle

No. 37500-00

# **Universal Scissors**

The scissor blades are made of high quality stainless-steel and guarantee a perfect cut. Handles are made of glass fiber reinforced polyamide.



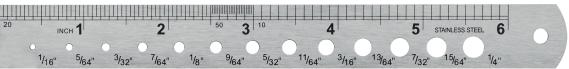


13 cm Stainless steel with plastic handle

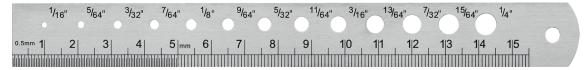
No. 37500-05

# **Ruler with Gauge Measurements**





#### Back



Stainless Steel 15.5 cm / 6"

No. 30085-15

#### **Rulter with Metric Conversion Table**

# Front



# Back



50% of actual size

Stainless Steel 30 cm / 12"

No. 30085-30

# **Ruler Label**

Used for stable measurements in all surgical platforms.





6 cm Pkg. of 25 labels

No. 29027-00

187

# **Plastic Vernier Caliper**

Tough polymer is unbreakable under normal conditions. Measures inside, outside, step and depth, metric and inch to 0.1 mm or 1/64". Maximum measurement: 153 mm.

# 75% of actual size

# **Plastic**

21 cm No. 30087-20

# **Digital Electronic Caliper**

Wide screen LED display with the ability to measure in millimeters, inches and fractions. Measures inside, outside, step and depth. Battery, spare battery and plastic storage case included.



# Stainless steel 23.5 cm

No. 30087-00

# Castroviejo Surgical Caliper

Used for precise measurement during surgery.



0-20 mm with 0.5 mm divisions Tip Ø: 0.5 mm

8.5 cm

No. 18000-35



# **Magnifying Loupe with Micrometer and LED**

High quality loupe features a removable micrometer and ultra-bright LED lights surrounding the circumference for a defined image and clear contrast.



38 x 38 x 40 mm

No. 29026-10



# **Stage Micrometers**

These are highly accurate stage micrometers for use with transmitted light in both compound and stereo microscopes. Comes with a plastic case.

76 x 26 mm 10 mm with 100 divisions (0.1 mm)

No. 29025-01

76 x 26 mm 1 mm with 100 divisions (0.01 mm)

No. 29025-02



# **Electronic Clock/Triple Timer**

Three activities can be timed up or down simultaneously or individually. Time can be displayed either in 12 or 24 hours and features a memory function. Maximum countdown time is 19 hours, 59 minutes, 59 seconds. Minimum time interval is 1 second. The timer housing includes a powerful magnet for mounting.

LCD display: 4.5 x 4.5 cm 7 x 8.5 x 1.5 cm AA battery (not included)

No. 27000-01



#### **Gold Wire Contacts**

Matching pin and socket. Contacts are crimp terminated, but also can be used for solder connections.

Total length: 16 mm (if connected) Ø:1.2 mm Opening for wire: 0.63 mm

Pkg. of 50 Male contacts

No. 19003-00

Pkg. of 50 Female contacts

No. 19003-01





# **Headband Magnifier**

Precision ground and polished optical glass lenses. The padded headband is lightweight and fully adjustable. Can be worn with spectacles.



to headband. It comes with a battery pack that holds two
AA batteries. Completely adjustable. Replacement bulbs
are available upon request.

Magnification: 2.5x Working distance: 20 cm (8")

No. 28030-02

Magnification: 2.75 Working distance: 15 cm (6")

No. 28030-03

Magnification: 3.5x Working distance: 10 cm (4")

No. 28030-04



AA battery (not included)

No. 28030-10

# **Interchangeable Magnifier Headset with LED**

Economical and fully interchangeable headband magnifier with LED light.



Magnification: 1x, 1.5x, 2x, 2.5x and 3.5x Field of view: Variable Working distance: Variable

No. 28080-10



# **Galilean Loupes**

These loupes are lightweight and easy to use. Made from the finest optical coated lenses which deliver excellent clarity and high resolution. The loupes are mounted onto a strong yet flexible wraparound safety frame with a headband for stability and comfort. Ability to flip loupes up for use as safety glasses.

Comes with mini screwdriver for fine adjustments, micro cloth and storage case.



Magnification: 3x Working distance: 40 cm (16") Weight: 72 g

No. 28050-30

Magnification: 3.5x Working distance: 30 cm (12") Weight: 77 g

No. 28050-35

# **Eschenbach Magnifier Spectacles**

These magnifier spectacles allow full adjustments on almost all parts. Headband keeps spectacles steady and in place. Leather case and Headband included.



Working distance: 35 cm (14")
Weight: 70 g
Plastic frame reinforced with fiberglass

No. 28040-30

# **Spectacles Headband**

Compatible with the Eschenbach Max Detail Spectacles (Item No. 28030-20) and Eschenbach Magnifier Spectacles (Item No. 28040-30).



Material: Neoprene

No. 28080-90

# **Eschenbach Max Detail Spectacles**

These spectacles are portable, lightweight, and easily adjustable. Designed with frosted objective lens housing which eliminates distracting reflections.

Bendable ear pieces for a secure, comfortable fit. Protective case is included.



Magnification: 2x Field of view: 110 mm (4") Working distance: 40 cm (16") Weight: 49 g

No. 28030-20

Max Detail Spectacles shown with Eschenbach Clip-On LED Light (sold separately).

#### **Eschenbach Clip-On LED Light**

A compact and lightweight light source with two high-performance SMD LED's and a lens that concentrates the light producing a more powerful, bright and homogenous field of view. Light can be set high or low. Compatible with the Max Detail Spectacles and Headband Magnifiers. Comes with 3 AA batteries, belt clip and storage case.

Weight: 106 g (incl. batteries)

No. 28030-25



#### **Eschenbach Vario Flex with LED**

The Vario LED Flex ensures ease and precision by its smooth flexible neck and tiltable magnifying lens. This magnifier's innovative features provide a spacious working platform suitable for any application. Mounting clamp provides uncompromised workspace due to its sturdy, slim design. The magnification lens is illuminated with shadow-free full or half ring optimum bright LEDs.

Magnification: 2.5x
Diopter: 6D
Lens size: 76 mm
Lens shape: Aspheric
Working distance: Variable
Lens material: PXM® lightweight lens with
patented Ceratec®scratch resistant coating
Illumination: SMD LED
Power source: 120 V & 230 V

No. 28015-25



#### **Eschenbach Scribolux Magnifier**

This magnifier provides an illuminated platform suitable for any working condition. The open design allows for a spacious working platform. Supplied in a microfiber pouch for protecting and cleaning the lens.

Magnification: 2.8x Diopter: 7/11D Lens size: 100 x 75 mm Lens shape: Aspheric Working distance: 7,5 cm (3")

Lens material: PXM® lightweight lens with patented Ceratec®scratch resistant coating

Illumination: SMD LED

Power source: 6V (4 AA-Batteries included)

No. 28020-28



# **Optical Cleaning Kit**

This convenient kit contains everything you need to clean lens surfaces safely. Perfect for microscopes, camera lenses, binoculars, telescopes, graphic art optics and all other fragile lenses. Storage case included.

#### Kit includes:

- 1 Bottle of lens cleaner (30 ml)
- 1 Ultra soft duster brush
- 1 Cleaning cloth (20 x 20 cm)
- 3 Books of lens paper (25 sheets each)



No. 29000-10

# **Lens Paper**

This premium grade optical lens tissue is extremely soft and safe for any glass or plastic optical lens surface.



15 x 10 cm Book of 50 sheets

No. 29015-50



#### Eschenbach mobilux® DIGITAL inspection

The reflection-free and high-contrast 4.3-inch display ensures relaxed work. The HD camera arranged centrally under the display enables easy orientation. A magnification of up to 15x can be selected continuously or in increments by touching the magnifying glass symbol. The integrated LED lighting offers great variability in lighting and exposure settings for a wide variety of applications. The mobilux® offers measurement and comparison functions via adjustable scales and templates as well as simultaneous comparison measurements of the target and actual status via a split screen on the PC.

With the photo function, the live image seen through the magnifying glass can be saved as a photo on an inserted SD card. The images can also be easily transferred to a computer via a USB connection. In addition, the USB connection to the computer enables the live image of the magnifying glass to be transferred to the PC monitor, so the mobilux® can also be used as a screen reader. The "mobilux® digital" program supplied must first be installed on the computer (Windows Vista, Windows 7, 8 or Windows 10).

Delivery incl. USB cable length 2m, SD memory card (incl. software), hand strap, manual, case for storage, calibration plate. Mains adapter for EU, GB, US, AUS included.

Magnification: 4 -15x
Field of view: Variable
Working distance: Variable
Screen size: 11 cm (4.3")
Screen resolution: 480 x 272 px
User input: Touchscreen



#### No. 28070-50

#### Eschenbach laboCOMFORT

With the laboCOMFORT, both hands remain free to work. The screen can be folded up when not in use. Various locking options for individual height adjustment of the magnifying screen. The headband magnifier can also be used by people who wear glasses.



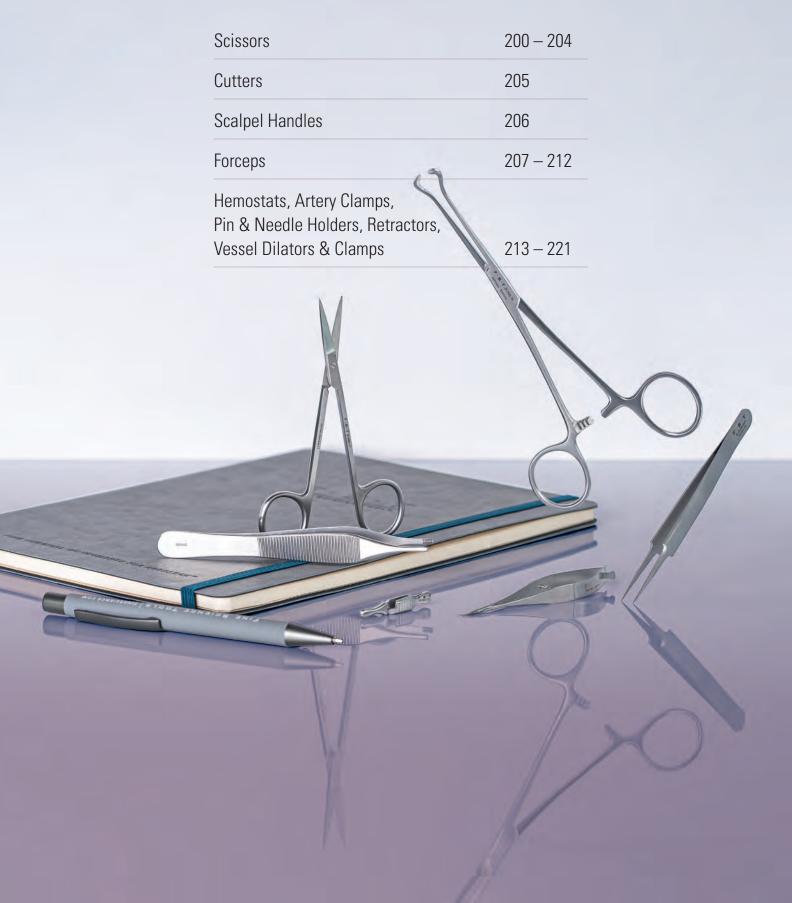
Can be used with the Eschenbach Clip-On LED light.

Magnification: 3x

Working distance: 13 cm (5")

No. 28030-13

# **STUDENT INSTRUMENTS**



# **FST STUDENT QUALITY INSTRUMENTS**



# **FEATURES**:

- Economy
- Quantity discounts
- Quality
- Less hand finishing
- Less expensive alloys

One of the hallmarks of FST has always been to accurately assess the needs of our customers. We gather information not only from the lab, but from conferences, journals and researchers. Whether it is designing new tools or finding new applications for existing instruments, we believe our best information comes directly from you.

Our customers wanted reduced costs and quantity discounts without sacrificing the precision and quality inherent in German instruments. To meet their needs, we have developed a full line of "student" instruments. They were created for use in the classroom where students are learning proper instrument care.

Unlike our competitors, the quality of these instruments does not drop dramatically with the price. Our student line uses quality stainless steel and maintains the precision you expect from FST. In addition they carry our unconditional satisfaction guarantee while being offered at a significantly reduced price.

Not intended as a substitute for our highest quality instruments, the student line may require extra care as the alloys used are more susceptible to corrosion. Visit our website at **finescience.com** for more information.



Quantity discount for student instruments: 5-9 = 5% 10 + = 10% Per item, selection cannot be assorted

for discount.



91500-09





Quantity discount for student 5-9=**5%** 

10+=**10%** Per item, selection cannot be assorted for discount.



 $9\,\mathrm{cm}$ Cutting edge: 5 mm Tip Ø: 0.35 mm

No. 91500-09



Curved Sharp/Sharp

9 cm Cutting edge: 5 mm Tip Ø: 0.35 mm

No. 91501-09





91460-11





11.5 cm Cutting edge: 16 mm

No. 91460-11



11.5 cm Cutting edge: 16 mm

No. 91461-11

#### Sanvenero





14.5 cm Cutting edge: 22 mm

No. 91408-14

# **Surgical Scissors**

		<u> </u>			
Length (cm) (r	Cutting edge	Straight Sharp/Sharp	Straight Sharp / Blunt	Straight Blunt / Blunt	
10.5 2	20	No. 91402-10	No. 91401-10	No. 91400-10	
12 2	26	No. 91402-12	No. 91401-12	No. 91400-12	
13 2	28	No. 91402-13	No. 91401-13		
14.5	30	No. 91402-14	No. 91401-14	No. 91400-14	
Length (	Cutting edge	Curved Sharp/Sharp	Curved Sharp / Blunt		F-S-T
12 2	26	No. 91405-11	No. 91404-12		
13 2	28	No. 91405-13	No. 91404-13		91401-14 Serman
14.5	30	No. 91405-14	No. 91404-14		



Quantity discount for student instruments: 5-9=5%10+=10%

Per item, selection cannot be assorted for discount.







Quantity discount for student instruments:

5-9 = 5% 10+= 10% Per item, selection cannot be assorted for discount.



11.5 cm Cutting edge: 20 mm

No. 91468-12



9 cm Cutting edge: 16 mm

No. 91476-09

# **Lister Scissors**

Longer blunt blade prevents damaging tissue underneath skin without losing the cutting line.

# Mayo





14 cm Cutting edge: 26 mm

No. 91413-14



Angled to side Blunt/Blunt

18 cm Cutting edge: 30 mm

No. 91413-18



Angled to side Blunt/Blunt

20 cm Cutting edge: 34 mm

No. 91413-20





Quantity discount for student instruments: 5-9 = 5% 10 += 10% Per item, selection cannot be assorted

for discount.



Curved Straight Sharp/Blunt Blunt/Blunt

14.5 cm 17 cm Cutting edge: 28 mm Cutting edge: 32 mm

No. 91409-15

No. 91410-17



17 cm Cutting edge: 32 mm

No. 91411-17

O/O DISCOUNT

Quantity discount for student instruments:

5-9 = 5% 10+= 10% Per item, selection cannot be assorted for discount.





0332 773210



Heavy Blades 10.5 cm Cutting edge: 20 mm

No. 91405-10

# **Bone Scissors**

For cutting fine bone.



# **Bone Cutter**





Quantity discount for student 5-9 = 5%

10 + = **10 %** Per item, selection cannot be assorted for discount.



For scalpel blades, see page 73.



For scalpel blades, see page 74.

#3

12 cm

No. 91003-12



for student instruments: 5-9 = 5% 10+= 10% Per item, selection cannot be assorted for discount.

#4

13 cm

No. 91004-13





# Dumont #5







Standard Straight

11 cm Inox 0.1 x 0.06 mm

No. 91150-20

# Dumont #7







Quantity discount for student instruments: 5-9 = 5 % 10 += 10 % Per item, selection cannot be assorted for discount.



Standard Curved

No. 91197-00





**Fine Forceps Straight Fine Forceps Broad Shanks Fine Forceps Curved Fine Forceps Angled** F-S-T 91110-10 F-S-T 91115-10 F-S-T 91117-10 F-S-T 91113-10 CE CE CE O/O DISCOUNT Quantity discount for student 5-9 = **5**% 10+=**10**% Per item, selection cannot be assorted for discount. Straight / Broad shanks Straight Curved **Angled** 12 cm 12 cm 11 cm 11 cm 0.2 x 0.2 mm 0.2 x 0.2 mm 0.2 x 0.1 mm 0.2 x 0.2 mm No. 91115-10 No. 91113-10 No. 91117-10 No. 91110-10







Quantity discount for student instruments: 5-9=5% 10+=10%

Per item, selection cannot be assorted for discount.



9 cm Tip Ø: 0.75 mm

No. 91139-09



Serrated/Sharp
Straight

11.5 cm Tip Ø: 1 mm

No. 91139-12



10.5 cm Tip Ø: 0.3 mm

No. 91156-11

Ouantity discount

for student

5-9 = 5%10 + = 10%

Per item, selection cannot be assorted for discount.

No. 91119-12

No. 91162-12

No. 91127-12

No. 91427-12

# **Anatomical Standard Pattern**



Straight Serrated

Tip width	Length (cm)	Item	
2.5	11.5	No. 91100-12	
2.7	13	No. 91100-13	
3	14.5	No. 91100-14	
3.5	16	No. 91100-16	
4	17	No. 91100-17	







# Surgical Standard Pattern



Straight 1x2 Teeth

Tip width	Length (cm)	Item
2.2	12	No. 91121-12
2.4	13	No. 91121-13
2.6	14.5	No. 91121-14
2.8	15.5	No. 91121-15
3	16	No. 91121-16
3.5	18	No. 91121-18
4	20	No. 91121-20
4.5	25	No. 91121-25

# Anatomical Narrow Pattern



Tip width	Length (cm)	Item
1.5	11.5	No. 91102-12
2.1	13	No. 91102-13
2.2	14.5	No. 91102-14
2.3	16	No. 91102-16

# Surgical Narrow Pattern



Tip width	Length (cm)	Item
2	11.5	No. 91123-12
2.2	14.5	No. 91123-14
2.4	16	No. 91123-16



Quantity discount for student instruments: 5-9 = 5%10 + = **10 %** Per item, selection cannot be assorted

for discount.

Quantity discount for student instruments: 5-9 = 5% 10+= 10% Per item, selection cannot be assorted for discount.

No. 91108-14

No. 91126-15

No. 91128-15

No. 91138-15

# **Halsted-Mosquito**

# Hartmann







Quantity discount for student 5-9 = 5%

10 + = **10 %** Per item, selection cannot be assorted for discount.



**Straight Serrated** 

12.5 cm Tip width: 1.4 mm

No. 91308-12



Curved Serrated

12.5 cm Tip width: 1.4 mm

No. 91309-12



Curved 1x2 Teeth and **Serrations** 

12 cm Tip width: 2 mm

No. 91331-12



Curved **Serrated** 

10 cm Tip width: 1.5 mm

No. 91303-10

5-9=**5%** 

10+=**10%** Per item, selection cannot be assorted for discount.







14 cm

Tip width: 1.5 mm

No. 91304-14

Straight

Serrated

16 cm

Tip width: 2 mm

No. 91304-16

14 cm

Tip width: 1.5 mm

No. 91305-14

Curved

Serrated

16 cm

Tip width: 2 mm

No. 91305-16



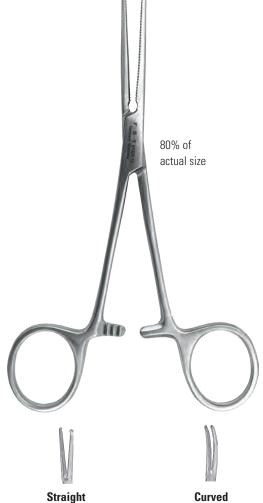


Pean

DISCOUNT 00

Quantity discount for student instruments: 5-9 = 5% 10+=10% Per item, selection cannot be assorted

cannot be assorted for discount.





Per item, selection cannot be assorted for discount.

**Straight** 1x2 Teeth and Serrations

**1x2 Teeth and Serrations** 

14 cm

Tip width: 2.2 mm

No. 91328-14

16 cm Tip width: 3 mm

No. 91328-16



14 cm Tip width: 2.2 mm

No. 91329-14

Curved 1x2 Teeth and Serrations

> 16 cm Tip width: 3 mm

No. 91329-16



Tip width: 2.2 mm

No. 91330-14

Tip width: 2.2 mm

No. 91331-14







Quantity discount for student 5-9=**5%** 

10 + = **10 %** Per item, selection cannot be assorted for discount.



9 cm No. 91195-09











10 cm Tip width: 2.5 mm

No. 91194-10



13 cm Tip width: 3 mm

No. 91194-13

O/O DISCOUNT





13 cm Tip width: 7 mm

No. 91196-13



# **Allis Clamp** 60% of actual size 5x6 Teeth 15 cm



**Hose Clamp** 



**Lister Sine Clamp** 



Quantity discount for student instruments: 5-9=**5%** 10 + = **10 %** Per item, selection cannot be assorted for discount.

Tip width: 6 mm

No. 91191-15

# **Cross-Serrated**

15 cm Tip width: 4 mm

No. 91198-15

### Serrated

16 cm Tip width: 3 mm

No. 91199-16

MOST POPULAR









Straight

16 cm

Tip width: 2.6 mm

Clamping length: 21 mm

Lockable: Yes

Scissors: No

No. 91204-16



Quantity discount for student 5-9=**5%** 10+=**10%** 

For pins, see page 115.

Per item, selection cannot be assorted for discount.

# **Nickel-plated**

7.5 cm Jaw opening: 0-1 mm

No. 91606-07

For suture needles, see page 150-151.



# Straight

13 cm Tip width: 1.5 mm

Clamping length: 18 mm Lockable: Yes Scissors: No

No. 91201-13



# Senn-Miller 16 cm 3 sharp teeth 7 x 8 mm and 1 blunt tooth 18 x 6 mm No. 91790-16 16 cm 3 sharp teeth 7 x 8 mm and 1 blunt tooth 18 x 6 mm No. 91791-16





**Vessel Dilator** 

# **Spring-Loaded Retractor**



Atraumatic blades 8.5 cm Maximum spread: 3 cm

No. 91706-05

# Barraquer





3 cm Maximum spread: 1.1 cm

No. 91700-03



for student instruments: 5-9 = 5%10 + = **10 %** Per item, selection cannot be assorted

for discount.

Dieffenbach



Straight

35 mm

No. 91850-35



Strong pressure

00071-14   119   10035-00   72   10110-16   69   11003-12   106   11010-26   88   11200-14   89   1200-33   87												
	00071-14	119	10035-00	72	10110-05	69	11003-12	105	11042-08	98	11200-14	88
												-
00127-13   96   10038-20   72   10140-01   131   11008-20   105   11052-10   99   11210-01   57												
00272-13   96	00125-11	124	10035-15		10130-20			105			11210-10	
0025-31   124   10035-30   72   10140-31   313   11006-15   97   11054-10   99   11215-02   57   00325-00   118   10050-00   71   10140-34   131   11006-13   106   11055-10   99   11220-21   86   00388-01   118   10055-18   71   10157-30   68   11008-15   106   11067-10   100   11223-20   88   00400-03   118   10053-13   71   10157-13   68   11008-13   106   11083-07   98   11229-10   88   00400-03   118   10053-13   71   10157-15   88   11009-15   106   11084-07   98   11229-10   88   00608-11   127   10055-12   66   10157-18   68   11011-17   111   11066-07   99   11231-20   84   00608-11   127   10055-12   66   10167-13   133   11011-17   111   11066-07   99   11231-30   84   00608-11   127   10055-13   66   10165-13   133   11011-17   111   11067-07   99   11231-30   84   00608-11   127   10059-15   67   10168-11   132   11012-25   111   11089-08   99   11241-30   88   00608-11   76   10000-13   76   10168-11   132   11012-25   111   11070-09   99   11251-09   81   10000-10   76   10000-13   76   10200-13   133   11012-25   111   11070-09   99   11251-02   81   10000-20   75   10061-12   131   103315-12   72   11015-13   110   11071-10   100   11251-20   81   10000-20   75   10061-12   131   103315-12   72   11015-13   110   11072-11   102   11251-21   82   10002-30   75   10061-12   131   103315-14   72   11015-17   111   11075-00   101   11251-33   83   10003-12   74   10008-15   130   10321-38   133   11018-12   103   11080-02   101   11251-33   83   10003-13   74   10004-14   131   03361-14   72   11015-17   111   11075-00   101   11251-33   83   10001-13   73   10051-15   130   10321-38   133   11018-12   103   11080-02   101   11252-03   81   10007-12   75   10071-14   66   10370-13   133   11018-12   103   11080-02   101   11252-03   81   10007-12   75   10071-14   66   10370-13   133   11011-17   111   11076-05   105   11252-03   81   10007-10   77   10081-15   133   11000-14   105   11022-12   108   11090-10   95   11252-23   81   10007-10   77   10081-15   133   11000-14   105   11022-12   108	00126-11		10035-20		10140-01		11003-20		11052-10		11210-20	
0.0325-0.0   118	00272-13	96	10035-25	72	10140-02	131	11006-12	103	11053-10	99	11215-01	57
00386-01         118         10052-11         71         10152-30         68         11008-15         106         11062-10         100         11223-20         86           00388-02         118         10053-13         71         10157-13         68         11009-15         106         11068-07         96         11229-10         88           00574-11         127         10055-12         66         10157-18         68         11010-17         111         11068-07         98         11221-20         84           00684-11         94         10088-15         67         10162-12         127         1111         11067-07         98         11221-30         84           00649-11         94         10089-15         67         10162-11         132         11012-21         111         11067-07         98         1124-30         86           10000-10         76         10059-15         67         10162-11         132         11012-21         111         11069-08         98         1124-40         86           10000-15         76         10061-3         76         10290-13         133         11012-21         111         11079-10         10         1125-10         81	00276-13	124	10035-30	72	10140-03	131	11006-15	97	11054-10	99	11215-02	57
0.038-0.2   118	00325-00	118	10050-00	71	10140-04	131	11008-13	106	11055-10	99	11220-21	86
0.040-0.03   118   1.0053-13   71   1.0157-15   68   1.1009-15   1.06   1.1064-07   98   1.1229-10   88   0.0574-11   1.27   1.0055-12   66   1.0157-18   68   1.1010-17   1.11   1.1065-07   98   1.1231-20   84   0.0682-11   94   1.0058-15   67   1.0162-12   1.29   1.1012-18   1.11   1.1067-07   98   1.1231-20   84   0.0682-11   94   1.0058-15   67   1.0162-12   1.29   1.1012-18   1.11   1.1067-07   98   1.1231-20   84   0.0682-11   94   1.0058-15   67   1.0162-11   1.22   1.1012-18   1.11   1.1069-08   98   1.1241-30   86   0.0689-11   75   0.0069-15   67   1.0166-11   1.32   1.1012-25   1.11   1.1070-09   98   1.1241-30   86   0.0069-11   76   1.0060-00   76   1.0167-11   1.32   1.1012-18   1.11   1.1071-10   1.00   1.1251-20   81   1.0000-15   76   1.0066-13   76   1.0299-13   1.33   1.1013-21   1.11   1.1071-10   1.00   1.1251-20   81   1.0002-00   75   1.0061-12   1.31   1.0315-12   72   1.1014-18   1.10   1.1073-10   1.01   1.1251-21   82   1.0002-00   75   1.0062-12   1.31   1.0315-14   72   1.1015-18   1.10   1.1073-10   1.01   1.1251-33   81   1.0003-12   74   1.0068-15   1.30   1.0317-14   72   1.1015-18   1.10   1.1074-02   1.01   1.1251-33   83   1.0003-13   74   1.0068-15   1.30   1.0317-14   72   1.1016-17   1.11   1.1075-00   1.01   1.1251-33   83   1.0004-13   73   1.0065-15   1.30   1.0231-08   1.39   1.1018-12   1.03   1.1080-02   1.10   1.1252-00   79   1.0006-12   77   1.0066-15   1.30   1.0300-13   1.39   1.1018-12   1.03   1.1080-02   1.10   1.1252-00   81   1.0007-12   75   1.0073-16   65   1.0370-17   1.39   1.1021-12   1.03   1.1080-09   95   1.1252-20   81   1.0001-00   74   1.0081-15   65   1.0000-12   1.05   1.1022-12   1.03   1.1081-15   1.17   1.1252-00   81   1.0010-00   74   1.0088-15   1.33   1.0000-18   1.05   1.1022-12   1.08   1.1093-10   95   1.1252-20   81   1.0011-00   74   1.0088-15   1.33   1.1000-18   1.05   1.1022-12   1.08   1.1093-10   95   1.1252-20   81   1.0011-00   74   1.0088-15   1.33   1.1000-18   1.05   1.1022-15   1.08   1.1093-10   99   1.1253-20   88   1.	00396-01	118	10052-11	71	10152-30	68	11008-15	106	11062-10	100	11223-20	86
0.0574-11   127   10055-12   66   10157-18   68   11010-17   111   11065-07   98   11231-20   94	00398-02	118	10053-09	71	10157-13	68	11009-13	106	11063-07	96	11229-08	88
06083-11         127         10056-12         66         10160-13         133         11011-17         111         11066-07         98         11231-30         84           0663-11         94         10056-15         67         10162-12         129         11012-18         111         11067-07         98         11241-30         86           10000-10         78         10069-15         67         10168-11         132         11012-25         111         1109-08         98         11224-0         86           10000-15         76         10060-13         76         10290-13         133         11013-25         111         1107-10         100         11251-20         81           10002-10         75         10061-12         131         10315-12         72         11014-18         110         1107-10         100         11251-20         81           10002-10         75         10061-12         131         10315-14         72         11014-18         110         1107-10         101         11251-20         81           10002-12         74         10063-15         130         10317-14         72         11014-17         111         11075-00         101         11251-33 </td <td>00400-03</td> <td>118</td> <td>10053-13</td> <td>71</td> <td>10157-15</td> <td>68</td> <td>11009-15</td> <td>106</td> <td>11064-07</td> <td>98</td> <td>11229-10</td> <td>88</td>	00400-03	118	10053-13	71	10157-15	68	11009-15	106	11064-07	98	11229-10	88
00632-11         94         10058-15         67         10162-12         129         11012-18         111         11067-07         98         11241-30         86           00649-11         94         10059-15         67         10166-11         132         11012-21         111         11069-08         98         11242-40         96           10000-10         76         10060-00         78         10167-11         132         11012-25         111         11070-10         100         11251-20         81           10000-15         76         10060-03         78         10251-11         132         11013-18         111         11071-10         100         11251-22         81           10002-00         75         10062-12         131         10315-12         72         11014-18         110         11072-11         102         11251-23         81           10002-50         75         10062-12         131         10315-12         72         11014-18         110         11072-10         101         11251-23         81           10003-12         74         10063-15         130         10317-14         72         11016-17         111         11075-00         101         1125	00574-11	127	10055-12	66	10157-18	68	11010-17	111	11065-07	98	11231-20	84
00649-11         94         10059-13         66         10165-11         132         11012-21         111         11069-08         98         11242-40         86           10000-10         76         10069-15         67         10166-11         132         11012-25         111         11070-08         98         11251-10         81           10000-15         76         10060-13         76         10269-13         133         11013-21         111         11071-10         100         11251-21         82           10002-00         75         10061-12         131         10315-12         72         11014-18         110         11073-10         101         11251-23         81           10002-50         75         10062-12         131         10315-14         72         11015-18         110         11073-10         101         11251-23         81           10003-12         74         10083-15         130         10311-14         72         11015-17         111         11076-15         106         11251-33         83           10003-13         74         10064-14         131         1031-44         72         11017-17         111         11076-15         10         11252-	00608-11	127	10056-12	66	10160-13	133	11011-17	111	11066-07	98	11231-30	84
10000-10   76   10059-15   67   10166-11   132   11012-25   111   11070-08   98   11251-10   81   10000-11   76   10060-00   76   10167-11   132   11013-18   111   11071-10   100   11251-20   81   10000-15   76   10060-13   76   10290-13   133   11013-21   111   11072-11   102   11251-21   82   10002-50   75   10061-12   131   10315-12   72   11014-18   110   11073-10   101   11251-32   81   10002-50   75   10062-12   131   10315-14   72   11015-18   110   11074-02   101   11251-33   83   110031-14   72   11015-18   110   11075-00   101   11251-33   83   110031-14   72   11015-18   110   11075-00   101   11251-33   83   110031-14   72   11015-18   110   11075-00   101   11251-33   83   110004-13   73   10065-15   130   10321-08   139   11018-12   103   11080-02   110   11252-30   79   10006-12   77   10066-15   130   10321-08   139   11019-12   103   11080-02   110   11252-00   79   10007-12   75   10075-16   65   10370-13   67   11020-12   103   11080-07   95   11252-21   82   10007-16   75   10075-16   65   10370-18   139   11021-12   108   11090-09   95   11252-23   81   10010-00   74   10081-10   65   10370-18   139   11021-15   108   11090-10   95   11252-30   81   10010-00   74   10081-10   65   10370-19   139   11021-15   108   11091-15   117   11252-00   79   10011-10   77   10082-15   65   110001-13   105   11022-14   108   11099-10   95   11253-10   82   10011-00   74   10081-15   133   110001-16   105   11022-14   108   11095-13   116   11253-25   80   10011-00   74   10081-15   133   110001-16   105   11022-15   108   11095-13   116   11253-25   80   10011-10   77   10089-11   135   11000-18   105   11022-14   108   11096-13   117   11253-25   80   10015-00   74   10081-15   133   11000-16   105   11023-15   108   11096-13   117   11253-27   83   10020-00   73   10091-12   136   110001-16   105   11023-15   109   11155-10   99   11253-20   81   10025-00   73   10091-12   136   110001-12   105   11024-12   106   11105-10   99   11277-20   85   10025-33   70   10095-12   65   11001-18   105   11023-	00632-11	94	10058-15	67	10162-12	129	11012-18	111	11067-07	98	11241-30	86
10000-11   76	00649-11	94	10059-13	66	10165-11	132	11012-21	111	11069-08	98	11242-40	86
10000-11   76	10000-10	76	10059-15	67	10166-11	132	11012-25	111	11070-08	98	11251-10	81
10000-15   76												
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10003-13												
10004-13         73         10065-15         130         10321-08         139         11018-12         103         11080-02         110         11252-00         79           10006-12         77         10066-15         130         10360-13         139         11019-12         103         11083-07         95         11252-20         81           10007-16         75         10075-16         65         10370-17         139         11021-12         108         11090-09         95         11252-23         81           10009-13         73         10080-05         65         10370-18         139         11021-14         108         11090-10         95         11252-30         81           10010-00         74         10081-10         65         10370-19         139         11021-15         108         11091-15         117         11252-30         81           10010-0         74         10082-15         65         11000-12         105         11022-12         103         11092-12         117         11252-30         81           10011-00         74         10081-10         135         11000-14         105         11022-15         108         11093-10         95         1125												
10006-12         77         10066-15         130         10360-13         139         11019-12         103         11083-07         95         11252-20         81           10007-12         75         10073-14         66         10370-13         67         11020-12         103         11084-07         95         11252-21         82           10007-16         75         10075-16         65         10370-18         139         11021-12         108         11090-10         95         11252-23         81           10010-00         74         10081-10         65         10370-19         139         11021-15         108         11091-15         117         11252-40         81           10011-00         74         10081-10         65         10370-19         139         11021-15         108         11091-15         117         11252-40         81           10011-00         74         10082-15         65         11000-13         105         11022-12         103         11092-10         116         11253-10         82           10011-10         77         10087-12         135         11000-14         105         11022-15         108         11095-09         116         1125												
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10007-16         75         10075-16         65         10370-17         139         11021-12         108         11090-09         95         11252-23         81           10009-13         73         10080-05         65         10370-18         139         11021-14         108         11090-10         95         11252-30         81           10010-00         74         10081-10         65         10370-19         139         11021-15         108         11091-15         117         11252-40         81           10010-10         77         10082-15         65         11000-13         105         11022-14         108         11093-10         95         11253-10         82           10011-00         74         10083-20         65         11000-13         105         11022-15         108         11093-10         95         11253-10         82           10012-00         74         10088-15         133         11000-16         105         11023-10         108         11095-13         116         11253-22         80           10015-10         77         10089-11         135         11000-18         105         11023-12         108         11096-13         117         1125												
10009-13         73         10080-05         65         10370-18         139         11021-14         108         11090-10         95         11252-30         81           10010-00         74         10081-10         65         10370-19         139         11021-15         108         11091-15         117         11252-40         81           10010-10         77         10082-15         65         11000-12         105         11022-12         103         11092-12         117         11252-50         79           10011-10         74         10083-20         65         11000-14         105         11022-15         108         11095-09         116         11253-10         82           10012-00         74         10088-15         133         11000-16         105         11023-10         108         11095-13         116         11253-21         80           10015-00         74         10089-11         135         11000-18         105         11023-12         108         11096-10         117         11253-21         80           10015-00         74         10090-17         134         11000-20         105         11023-14         108         11096-10         117												
10010-00         74         10081-10         65         10370-19         139         11021-15         108         11091-15         117         11252-40         81           10010-10         77         10082-15         65         11000-12         105         11022-12         103         11092-12         117         11252-50         79           10011-00         74         10083-20         65         11000-14         105         11022-14         108         11093-10         95         11253-10         82           10011-10         77         10087-12         135         11000-14         105         11022-15         108         11095-09         116         11253-20         80           10015-00         74         10088-15         133         11000-18         105         11023-10         108         11095-13         116         11253-21         80           10015-00         74         10089-11         135         11000-18         105         11023-12         108         11096-10         117         11253-25         80           10015-00         73         10090-13         134         11000-20         105         11023-12         108         11096-13         117 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>												
10010-10         77         10082-15         65         11000-12         105         11022-12         103         11092-12         117         1125-50         79           10011-00         74         10083-20         65         11000-13         105         11022-14         108         11093-10         95         11253-10         82           10011-10         77         10087-12         135         11000-16         105         11022-15         108         11095-09         116         11253-20         80           10015-00         74         10088-15         133         11000-18         105         11023-10         108         11095-13         116         11253-21         80           10015-00         74         10089-11         135         11000-18         105         11023-12         108         11096-10         117         11253-25         80           10015-10         77         10090-13         134         11000-20         105         11023-14         108         11096-13         117         11253-25         80           10021-00         73         10091-12         135         11000-20         105         11023-15         108         11101-09         102 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>_</td></td<>												_
10011-00         74         10083-20         65         11000-13         105         11022-14         108         11093-10         95         11253-10         82           10011-10         77         10087-12         135         11000-14         105         11022-15         108         11095-09         116         11253-20         80           10015-00         74         10088-15         133         11000-18         105         11023-12         108         11095-13         116         11253-21         80           10015-10         77         10090-13         134         11000-20         105         11023-12         108         11096-10         117         11253-25         80           10020-00         73         10090-17         134         11000-25         105         11023-15         108         1110-09         102         11253-29         80           10021-00         73         10091-12         135         11000-30         105         11024-12         106         11103-09         102         11253-29         80           10022-00         73         10092-12         136         11001-12         105         11024-18         111         11106-09         102 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
10011-10         77         10087-12         135         11000-14         105         11022-15         108         11095-09         116         11253-20         80           10012-00         74         10088-15         133         11000-16         105         11023-10         108         11095-13         116         11253-21         80           10015-00         74         10089-11         135         11000-18         105         11023-12         108         11096-10         117         11253-25         80           10015-10         77         10090-13         134         11000-20         105         11023-14         108         11096-13         117         11253-27         83           10020-00         73         10091-12         135         11000-30         105         11023-15         108         11101-09         102         11253-29         80           10021-00         73         10091-12         135         11000-30         105         11024-12         106         11103-09         102         11254-20         79           10022-00         73         10093-13         136         11001-12         105         11024-18         111         11106-09         102												
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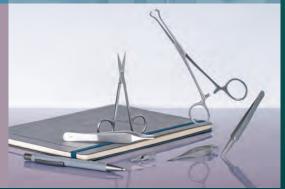


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