Probes, Needle Holders, Thread, Retractors & Clamps

Probes & Hooks Pages 99 – 102
Spatulae & Spoons Pages 102 – 105
Pins & Holders Pages 106 – 107
Wound Closure Pages 109 – 119
Retraction Pages 120 – 127
Vascular Instruments Pages 128 – 133
Double Pronged Pick
For peritoneum, pleura, endocardium, organ capsules and skin. Grasps and lifts skin, tissue and dura, etc.

![Double Pronged Pick Image]

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.

11 cm
No. 18067-11

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.

![Spinal Cord Hook Image]

Tip diameter: 3 mm
12 cm
No. 10162-12
Bonn Micro Probes

- Length: 13.5 cm
- Straight
  - Tip diameter: 0.025 mm
  - No. 10030-13
- Angled 45°
  - Tip diameter: 0.025 mm
  - No. 10032-13
- Curved
  - Tip diameter: 0.025 mm
  - No. 10031-13
- Large curve
  - Tip diameter: 0.038 mm
  - No. 10033-13

Micro Points

- Length: 15.5 cm
- Angled 90° short
  - Tip diameter: 0.05 mm
  - No. 10063-15
- Angled 90°
  - Tip diameter: 0.02 mm
  - No. 10065-15
- Angled 45°
  - Tip diameter: 0.025 mm
  - No. 10066-15
- Large curve
  - Tip diameter: 0.038 mm
  - No. 10066-15
Probes and Explorers

- **Straight**
  - Tip diameter: 0.25 mm
  - Length: 15.5 cm
  - No. 10140-01

- **Short angle**
  - Tip diameter: 0.15 mm
  - Length: See below
  - No. 10140-02

- **Angled**
  - Tip diameter: 0.15 mm
  - No. 10140-03

Micro Hooks

- **Short round hook**
  - Tip diameter: 0.05 mm
  - Length: 13 cm
  - No. 10064-14

- **Sharp hook**
  - Tip diameter: 0.075 mm
  - Length: 12 cm
  - No. 10061-12

- **Blunt hook**
  - Tip diameter: 0.30 mm
  - Length: 12 cm
  - No. 10062-12
**Gross Anatomy Probe**
- Tip diameter: 1.2 mm
- 15 cm
- No. 10088-15

**Vessel Dilating Probe**
- Tip diameter: 0.6 mm
- 12.5 cm
- No. 10160-13

**Combination Probe and Spatula**
- 7 mm
- 13 mm
- 14 cm
- No. 10090-13
### Micro Spatula
- Tip width: 1 mm
- Tip thickness: 0.25 mm
- Length: 11 cm
- No. 10089-11

### Mirror Finish Micro Spatula
- Mirror finished to provide a non-stick spatula.
- Tip width: 0.8 mm
- Tip thickness: 0.25 mm
- Length: 12 cm
- No. 10087-12

### Double-Ended Micro Spatula
- Tip width: 3 mm
- Tip thickness: 0.4 mm
- Length: 13 cm
- No. 10094-13

### Mirror finished Micro Spatula
- Tip width: 1.7 mm
- Tip thickness: 0.3 mm
- Length: 13 cm
- No. 10093-13

### Iris Spatulae
- Tip width: 1.8 mm
- Tip thickness: 0.3 mm
- Length: 12 cm
- No. 10092-12

- Tip width: 2 mm
- Tip thickness: 0.3 mm
- Length: 13 cm
- No. 10091-12

- Tip width: 7.5 mm
- Length: 7.5 mm
- Double-Ended Micro Spatula

- Mirror Finish Micro Spatula
- Mirror finished to provide a non-stick spatula.
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.

14.5 cm
No. 10099-12

16 cm
No. 10099-15
<table>
<thead>
<tr>
<th>Spoon</th>
<th>Mini Perforated Spoon</th>
<th>Perforated Spoon</th>
<th>Mirror Finish Cutting Spoon</th>
</tr>
</thead>
</table>
| Diameter: 8 mm  
Depth: 2 mm  
12.5 cm | Diameter: 8 mm  
Depth: 1 mm  
10 cm | Diameter: 15 mm  
Depth: 3 mm  
14.5 cm | Diameter: 4.5 mm  
Depth: 0.15 mm  
13 cm |
| Moria 1121B  
No. 10321-08 | Moria MC 17C  
No. 10370-19 | Most commonly used to take embryos out of solution and handling very small organs. | Non stick cutting spoon. |
| Perforations are 0.8 mm in diameter. | Perforations are 0.9 mm in diameter. | | |

**SPATULAE & SPOONS**

**SPOONS**

**FINESCIENT.COM** · MOST ITEMS SHOWN ACTUAL SIZE

**FINESCIENCE.COM** · MOST ITEMS SHOWN ACTUAL SIZE
Pin Holder
Light weight.

Pin Holder

Nickel-plated chuck
Aluminum handle
Jaw opening: 0–1 mm
17 cm
No. 26018-17

Nickel-plated
Jaw opening: 0–1 mm
12 cm
No. 26016-12

Self Holding Pin and Bone Screw Forceps
Designed with a serrated tip and grooved cup for a stable and secure grip, these forceps hold pins and screws allowing precise placement at your target area. They are compatible with all Fine Science Tools insect pins, minutien pins and bone screws.

Polished stainless steel
14 cm
No. 26100-00
Insert Pins
All insert pins fit any of our pin holders. Pins are antimagnetic and acid resistant.
Stainless steel
5 cm

Black Anodized Minutien Pins
These high quality pins are black for best visibility under high magnification and bright light.
Tip diameter: 0.0175 mm
Rod diameter: 0.15 mm
10 mm
Box of 500 pins
No. 26002-15

Stainless Steel Minutien Pins
The thinnest and finest pins available.
Tip diameter: 0.0125 mm
Rod diameter: 0.1 mm
10 mm
Box of 500 pins
No. 26002-10

Black Anodized Insect Pins
Nylon heads
Tip diameter: 0.03 mm
Pkg. of 100 pins

Stainless Steel Insect Pins
Nylon heads
Tip diameter: 0.03 mm
Pkg. of 100 pins

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 106.
Tip Diameter: 1 µm (1 mm)
12 mm
Box of 10 needles

Size          000   00   0   1   2   3   4   5   6   7
Rod Diameter (mm) .25  .30  .35  .40  .45  .50  .55  .60  .65  .70
No. 26000      -25  -30  -35  -40  -45  -50  -55  -60  -65  -70

Size          000   00   0   1   2   3   4   5   6   7
Rod Diameter (mm) .25  .30  .35  .40  .45  .50  .55  .60  .65  .70
No. 26001      -25  -30  -35  -40  -45  -50  -55  -60  -65  -70

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<th>Rod Diameter (mm)</th>
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<th>Price</th>
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<td>0.125</td>
<td>No. 10130-05</td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>No. 10130-10</td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td>No. 10130-20</td>
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</tr>
</tbody>
</table>
Fine Science Tools Online and Around the World

Helping you find the right tools

As always, customer service is a priority at our FST offices and dealers. As part of this priority we invite you to visit us online to help you research and find the Fine Science products best suited for your needs. View our entire product line with complete descriptions, dimensions and clear images.
EVO Needle Holder
Lighter than titanium but with all the benefits of stainless steel. The fully fenestrated spring body has a stability rod to provide balance in your hand.

Castroviejo
Micro pattern, with slightly blunted tips.

Cautionary note: 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 116).
**Needle Holder with Suture Cutter**

- Curved
  - Cutting edge: 3.5 mm
  - 14 cm
  - Without lock
  - No. 12075-14

**Round Handled Needle Holder**

Round handles allow easy fingertip adjustments.

- Straight
  - 12.5 cm
  - With lock
    - No. 12075-12
  - Without lock
    - No. 12076-12

**Cautionary note:** 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 116).
Mathieu
Extra slim and narrow profile, with squeeze-lock. Facilitates excellent wrist motion for suturing.

Castroviejo with Tungsten Carbide Jaws

For more information on tungsten carbide, see page 21.
**NEEDLE HOLDERS**

**Halsey**

- Smooth 13 cm
  - No. 12001-13

- With tungsten carbide jaws 13 cm
  - No. 12501-13

**Halsey with Tungsten Carbide Jaws**

- With tungsten carbide jaws 12.5 cm
  - No. 12500-12

For more information on tungsten carbide, see page 21.
Olsen-Hegar with Suture Cutter

![Image of Olsen-Hegar with Suture Cutter]

- **With tungsten carbide jaws**
- **10 mm cutting edge**
- **1.5 mm jaw surface**
- **12 cm**
- **No. 12502-12**
- **Left Handed**
  - **No. 12102-12**

- **With tungsten carbide jaws**
- **15 mm cutting edge**
- **2 mm jaw surface**
- **14 cm**
- **No. 12502-14**
- **Left Handed**
  - **No. 12512-12**

- **With tungsten carbide jaws**
- **10 mm cutting edge**
- **1.5 mm jaw surface**
- **12 cm**
- **No. 12002-12**

- **With tungsten carbide jaws**
- **15 mm cutting edge**
- **2 mm jaw surface**
- **14 cm**
- **No. 12002-14**

- **10 mm cutting edge**
- **1.5 mm jaw surface**
- **12 cm**
- **No. 12002-12**

- **15 mm cutting edge**
- **2 mm jaw surface**
- **14 cm**
- **No. 12002-14**

- **10 mm cutting edge**
- **1.5 mm jaw surface**
- **12 cm**
- **No. 12102-12**

- **15 mm cutting edge**
- **2 mm jaw surface**
- **14 cm**
- **No. 12512-12**
NEEDLE HOLDERS

Crile-Wood

15 cm
No. 12003-15

16 cm
No. 12004-16

18 cm
No. 12004-18

Mayo-Hegar

15 cm
No. 12503-15

With tungsten carbide jaws
15 cm
No. 12504-15

16 cm
No. 12004-16

18 cm
No. 12004-18

LEFT HANDED
Slim Elongated Needle Holder with Tungsten Carbide Jaws

With tungsten carbide jaws
15 cm
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.

With tungsten carbide dust tips
15 cm
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 S&T to provide a microsurgical needle that is unmatched in the industry. S&T 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 non-absorbable black nylon polyamide monofilament thread and stainless steel 3/8 circle needle. Nylon is suitable for closing ophthalmic, neurological and microvascular wounds.
- Grinding geometry and suture needle attachment are directed toward frictionless tissue penetration.
- Each needle suture combination is individually packed in a needle holder and then sealed in a peel-open blister pack.

Sterile

Pkg. of 12 disposable units

<table>
<thead>
<tr>
<th>Size</th>
<th>Diameter (mm)</th>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
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<td>0.08</td>
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</tr>
<tr>
<td>5/0</td>
<td>0.12</td>
<td>No. 1820-50</td>
<td></td>
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<tr>
<td>4/0</td>
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<tr>
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<td>0.22</td>
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<tr>
<td>1</td>
<td>0.45</td>
<td>No. 1820-01</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.55</td>
<td>No. 1820-02</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.65</td>
<td>No. 1820-03</td>
<td></td>
</tr>
</tbody>
</table>

Suture Needles

Polished stainless steel
3/8 curved
Round with standard eye
Diameter 0.35 mm
Non-sterile

Pkg. of 12 needles

<table>
<thead>
<tr>
<th>Size</th>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>No. 12050-01</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>No. 12050-02</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>No. 12050-03</td>
<td></td>
</tr>
</tbody>
</table>
Michel Suture Clips
Anti-magnetic, acid-resistant stainless steel
Pkg. of 1,000 clips

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>Item</th>
<th>Price</th>
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<tbody>
<tr>
<td>7.5 x 1.75</td>
<td>No. 12040-01</td>
<td></td>
</tr>
<tr>
<td>11 x 2</td>
<td>No. 12040-02</td>
<td></td>
</tr>
<tr>
<td>12 x 2.5</td>
<td>No. 12040-03</td>
<td></td>
</tr>
</tbody>
</table>

Larger clip sizes also available.

Approximation Forceps with Rack

For clip size 12040-01 only
No. 12017-14

For clip sizes 12040-02 and larger
No. 12016-14

Applying Forceps

For all Michel suture clips
12.5 cm
No. 12018-12

Applying and Removing Instruments

For clip size 12040-01 only
Angled
13 cm
No. 12029-12

For clip sizes 12040-02 and larger
Curved
13 cm
No. 12028-12
Reloadable Skin Stapler with Rotating Head

The 360 degree swivel nose and unique design offer maximum visibility at the delivery point. The 35 wide and fine 316L stainless steel staples come sterile and feature the patented “Twin Towers” staple design which make for quick and easy removal. The disposable staple cartridge also includes a printed staple counter so you know how many staples you have left. The staple cartridges and remover are sterile. The handle is reusable and autoclavable.

Components sold separately or as a kit.

Surgical staple set includes:
- 1 Handle
- 1 Remover
- 12 Disposable staple cartridges
  No. 12030-00

Handle
No. 12030-01

Disposable staple cartridge
35 staples per cartridge
Single cartridge
No. 12030-02

Disposable staple cartridge
35 staples per cartridge
12 cartridges
No. 12030-03

Surgical staple remover
No. 12030-04

Staple, actual size:

Staple Dimensions:

6.5 mm

3.6 mm

4.8 mm

Trigger with full-stroke ratchet facilitates accurate staple placement

360° rotation

Maximum visibility at the delivery point

Reusable autoclavable handle

Surgical staple remover

Lightweight, ergonomic pistol grip handle

Disposable staple cartridge contains 35 316L stainless steel staples with printed staple counter

75% actual size
AutoClip® System

The AutoClip® System is a safe, secure alternative 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 and not autoclavable.**

Components sold separately or as a kit.

AutoClip® Kit includes:
- 1 Applier
- 9 mm AutoClip® clips (100)
- 1 Remover
- Storage Case

No. 12020-00

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
<th>Code</th>
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<tbody>
<tr>
<td>AutoClip® applier</td>
<td>11.5 cm</td>
<td>No. 12020-09</td>
<td></td>
</tr>
<tr>
<td>9 mm clips</td>
<td>Pkg. of 100 clips</td>
<td>No. 12022-09</td>
<td></td>
</tr>
<tr>
<td>AutoClip® remover</td>
<td>12.5 cm</td>
<td>No. 12023-00</td>
<td></td>
</tr>
</tbody>
</table>
Guthrie
Extra delicate pattern.

- 2 Pronged
- Blunt
- 13 cm
- No. 17021-13

- 2 Pronged
- Blunt
- 13.5 cm
- No. 17023-13

- 4 Pronged
- Blunt
- 13.5 cm
- No. 17022-13

- 2 Pronged
- 2 mm Ball at each tip
- 17 cm
- No. 17020-17
RETRACTORS

**Slide Retractor with Blades**

Maximum spread: 1 cm  
Atraumatic blades  
2 cm  
No. 17004-03

**Mini-Goldstein**

Maximum spread: 0.5 cm  
3x3 Sharp teeth  
2 cm  
No. 17002-02

**Colibri**

Maximum spread: 1.5 cm  
3 cm  
No. 17000-03

**Slide Retractor with Teeth**

Maximum spread: 1 cm  
2x2 Blunt teeth  
2 cm  
No. 17005-03

**Goldstein**

Maximum spread: 1.8 cm  
3x3 Sharp teeth  
3 cm  
No. 17003-03

**Agricola**

Maximum spread: 3.5 cm  
3x3 Sharp teeth  
4 cm  
No. 17005-04

FINESCIENCE.COM · MOST ITEMS SHOWN ACTUAL SIZE
**Fine Adjustable Wire Retractor**

Thin, curved blades  
Maximum spread: 3.5 cm  
5 cm  
No. 17004-05

**Speculum**

Thin, curved blades and grooved finger grips  
Maximum spread: 3.5 cm  
4.5 cm  
Moria 7699  
No. 17370-53

**Spring-Loaded Retractor**

Curved atraumatic blades  
Maximum spread: 3 cm  
5.5 cm  
No. 17006-05

**Bowman**

Maximum spread: 2.5 cm  
8 cm  
No. 17001-07

**Blade dimensions:**  
- 1 mm  
- 6 mm  
- 6 mm

**Blade dimensions:**  
- 5.5 cm  
- 1 mm
Mouth Retractor

Slightly curved Slings
Maximum spread: 4 cm
7 cm
No. 17030-07

Maximum spread: 9.5 cm
13 cm
No. 17030-13

Alm Retractor with Blunt Teeth

Maximum spread: 4 cm
Arms gently curved down
7 cm
5.5 mm
Blunt teeth
No. 17008-07

16 mm

Long blunt teeth
No. 17009-07

Alm Retractor with Blades

Maximum Spread: 4.5 cm
Arms gently curved down
Thin, curved blades
7.5 cm
No. 17009-08

Maximum spread: 7 cm
Arms curved down
Long blunt teeth
Range: 30 mm
Depth: 15 mm
10 cm
No. 17010-10

Alm Retractor for Three Point Retraction

Movable third arm with curved ends fits left or right

15 mm

4.5 mm

5.5 mm
Heiss

Maximum spread: 2.3 cm
4x4 Blunt teeth
10 cm

No. 17011-10

Gelpi

Maximum spread: 3 cm
Angled down
1x1 Sharp teeth
10 cm

No. 17017-10
**Weitlaner-Locktite**

- Maximum spread: 4.5 cm
- 2x3 Blunt teeth
- 11 cm
- No. 17012-11

- Maximum spread: 6.5 cm
- 3x4 Blunt teeth
- 13 cm
- No. 17012-13

---

**Wullstein**

- Maximum spread: 4.5 cm
- Angled down
- 3x3 Blunt teeth
- 11 cm
- No. 17018-11
Surgery Plate

The plate is made of matte steel to reduce glare from heating lamps. The perimeter slots secure the stainless steel retractor ball chains, offering retraction in every direction, lateral and upwards with the help of the elevated chain holders. With the help of the ball chains the animal can be held firmly in position. Four feet will lift the platform by 1.5 cm to facilitate the locking of the retractor chain.

Base plate
Dimensions: 14 x 24 cm
No. 18100-00

Ball chain elevators
Dimensions: 8.5 cm high x 3 cm wide
Pkg. of 2
No. 18100-02

Ball chain elevators with hooks
Dimensions: 21 cm long
Pkg. of 4
No. 18100-05

Wide hooks
Dimensions: 20 x 5 mm
Pkg. of 4
No. 18100-07
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 x 13 cm for the small base plate and 15 x 25 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.

---

**Individual parts:**

- Short fixator, 2.5 cm high
  - Each
  - No. 18200-01

- Tall fixator, 5 cm high
  - Each
  - 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
  - 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

---

**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
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.

Each size of clamp has its own different and carefully calibrated closing force. Each clamp size is designed for a specific range of vessel diameters (Fig. 1).

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.

The table (Fig. 2) summarizes the relationship between clamp size, recommended vessel diameter and clamp pressure.

“Vessel diameter” refers to the external diameter of the vessel in its natural state of full dilation. There is a 50% overlap in the recommended vessel diameter range, between each clamp size and the next larger or smaller size. Thus, for every vessel diameter, with the exception of those at the extreme ends of the range, there will always be two suitable clamps. Whenever a choice arises, the smaller clamp should be selected to ensure gentler, less pressured handling of the vessel.
**Micro Clip Applicator with Lock**

For use with our 18055 series micro serrefines 14 cm

No. 18056-14

**Forceps Style Clip Applicator**

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

For use with our 18055 series micro serrefines 14 cm

No. 18057-14

**Stainless Steel Micro Serrefines**

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

Delicate atraumatic serrations

Spring width: 2 mm

<table>
<thead>
<tr>
<th></th>
<th>-01</th>
<th>-02</th>
<th>-03</th>
<th>-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaw Length (mm)</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Jaw Width (mm)</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0.75</td>
</tr>
<tr>
<td>Total Length (mm)</td>
<td>19</td>
<td>16</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Jaw Pressure (g)</td>
<td>60</td>
<td>85</td>
<td>100</td>
<td>125</td>
</tr>
</tbody>
</table>

**Titanium Micro Serrefines**

Lightweight with strong clamping pressure.

Delicate atraumatic serrations

Spring width: 2 mm

For more information on Titanium see page 21.

<table>
<thead>
<tr>
<th></th>
<th>-05</th>
<th>-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaw Length (mm)</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Jaw Width (mm)</td>
<td>1</td>
<td>0.75</td>
</tr>
<tr>
<td>Total Length (mm)</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Jaw Pressure (g)</td>
<td>100</td>
<td>125</td>
</tr>
</tbody>
</table>

**Cautionary note:** Micro Serrefines should never be compressed with fingers; use only the appropriate applicator No. 18056-14 or No. 18057-14.
**Schwartz Micro Serrefines**
Non-serrated  
Strong pressure  
26 mm

- Straight  
  No. 18052-01
- Light Bend  
  No. 18052-02
- Sharp Bend  
  No. 18052-03

**Mini Serrefines**
Smallest bulldog-type hemostatic clamps  
Medium pressure  
Gentle serrations  
2 mm wide  
28 mm

- Straight  
  No. 18054-28
- Curved  
  No. 18053-28

**Bulldog Artery Spring Clamp**
Can be used with a minimum of distortion for MRI investigations.

- Straight  
  No. 18144-30

For more information on Titanium see page 21.

**Dietrich Bulldog Clamps**
Serrated  
Good access to deep seated vessels  
Closing pressure: 50 g (light)  
Weight: 3 g

- Straight  
  52.5 mm  
  No. 18038-45

**Bulldog Type Serrefines**
Serrated  
Straight  
Medium pressure  
28 mm  
No. 18050-28

- Curved  
  Medium pressure  
  28 mm  
  No. 18051-28

**Moria Vessel Clamp**
Finely serrated (atraumatic)  
Light pressure  
For vessels up to 2 mm in diameter  
Calibrated to 15g/mm²  
1.8 mm wide, 3 cm long  
Straight  
33 mm  
Moria 201/A  
No. 18320-11

**Moria Bulldog Type Clamps**
Non-serrated  
Strong pressure  
2 mm wide  
53 mm

- Straight  
  Moria MC43  
  No. 18374-43

- Curved  
  Moria MC44  
  No. 18374-44

**Curved**

**Schwartz Micro Serrefines**
Non-serrated  
Strong pressure  
26 mm

- Straight  
  No. 18052-01
- Light Bend  
  No. 18052-02
- Sharp Bend  
  No. 18052-03

**Mini Serrefines**
Smallest bulldog-type hemostatic clamps  
Medium pressure  
Gentle serrations  
2 mm wide  
28 mm

- Straight  
  No. 18054-28
- Curved  
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**Bulldog Artery Spring Clamp**
Can be used with a minimum of distortion for MRI investigations.

- Straight  
  No. 18144-30

For more information on Titanium see page 21.

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Moria 201/A  
No. 18320-11

**Moria Bulldog Type Clamps**
Non-serrated  
Strong pressure  
2 mm wide  
53 mm

- Straight  
  Moria MC43  
  No. 18374-43

- Curved  
  Moria MC44  
  No. 18374-44

**Curved**
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
Step 1 Apply the occluder cuff around the exposed blood vessel. Secure it in place with suture material through the eyelets.
Step 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.
Step 3 To deflate, simply withdraw the air or liquid.

Benefits
- Occlusion is accomplished without traction on vessels or surrounding tissues.
- The actuating tube may be exteriorized from the occlusion site for remote actuation.
- Performance during implantations is reliable and consistent.
- Autoclavable or cold sterilized, and easily maintained.
- 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.

VO-1.5 N
Lumen diameter: 1.5 mm
Cuff width: <3.5 mm
Cuff thickness: 1.5 mm
No. 18080-01

VO-2
Lumen diameter: 2 mm
Cuff width: 5 mm
Cuff thickness: 1.5 mm
No. 18080-02

VO-3
Lumen diameter: 3 mm
Cuff width: 5 mm
Cuff thickness: 1.5 mm
No. 18080-03

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

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

8 cm
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.

For tubing between 0.5 and 1 mm OD
11 cm
No. 00574-11

For tubing between 0.5 and 1 mm OD
13.5 cm
No. 00571-13

For tubing of 0.35 mm OD
11 cm
No. 11280-11

For tubing of 0.5 mm OD
11 cm
No. 11281-11

For tubing of 1 mm OD
11 cm
No. 11282-11