**Micro Clamps**

**Clamp Size and Clamp Pressure**

When choosing the right size clamp for your work, clamp pressure is an important consideration. 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 5gm/mm\(^2\) when used on the largest vessel in its range, and 15gm/mm\(^2\) 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 a gentler, less pressured handling of the vessel.
**Micro Serrefine**  
With delicate,atraumatic serrations and 2 mm spring width. Used to obtain a clear surgical field for extended arterial cross-clamping.  

**Caution:** These clips should never be compressed with fingers; use only the appropriate applicator No. 18056-14 or No. 18057-14.

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<td>Jaw Pressure (gr)</td>
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Schwartz Micro Serrefine
Strongly tensioned, non-serrated.

- Straight, 26 mm
  No. 18052-01
- Light Bend, 26 mm
  No. 18052-02
- Sharp Bend, 26 mm
  No. 18052-03

Mini Serrefine
Smallest bulldog type hemostatic clamps, medium pressure, gentle serrations on inside of jaws, 2 mm wide.

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

Bulldog Type Serrefine
Serrated.

- Straight, 28 mm
  No. 18050-28
- Curved, 28 mm
  No. 18051-28

Dietrich Bulldog Clamps
Serrated, good access to deep seated vessels. Closing pressure 50g. Weight 3g.

- Straight, 52.5 mm
  No. 18038-45
- Angled, 50 mm
  No. 18039-45

Bulldog Type Clamps
Serrated.

- Straight, 28 mm
  No. 18050-28
- Curved, 28 mm
  No. 18051-28
- Straight, 35 mm
  No. 18050-35
- Curved, 35 mm
  No. 18051-35

Moria Vessel Clamps
Finely serrated (atraumatic), gentle pressure, for vessels up to 2 mm in diameter, calibrated to 15g/mm². 1.8 mm wide, 3 cm long.

- Straight, MORIA 201/A, 33 mm
  No. 18320-11

Moria Bulldog Type Clamps
Exquisitely made, no serrations on inside. 2 mm wide tips.

- Straight, MORIA MC43, 53 mm
  No. 18374-43
- Curved, MORIA MC44, 53 mm
  No. 18374-44

This bulldog artery spring clamp is fashioned from surgical titanium, and can be used with a minimum of distortion for MRI investigations.

- Straight, 30 mm
  No. 18144-30
- Curved, 35 mm
  No. 18051-35
- 50 mm
  No. 18051-50
Vascular Occluders
used for constriction of blood vessels and soft organs

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 any degree desired 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 of FST Vascular Occluders compared to similar devices:
- 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 gasses

Selection of the proper Occluder:
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.

Vascular Occluder - VO-1.5 N
Lumen Diameter 1.5 mm,
Cuff Width <3.5 mm,
Cuff Thickness 1.5 mm
No. 18080-01

Vascular Occluder - VO-2
Lumen Diameter 2 mm,
Cuff Width 5 mm,
Cuff Thickness 1.5 mm
No. 18080-02

Vascular Occluder - 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

Silver Neuro Clips
These “one time use” silver neuro clips are meant for permanent vessel occlusion.
Pkg. of 100
No. 18040-00
Ligation Aids For Blood Vessels and Nerves
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.

- Right-handed, hole diam. 1 mm 13.5 cm No. 18062-13
- Left-handed, hole diam. 1 mm 13.5 cm No. 18063-13
- Ultra fine ligation aid, hole diam. 0.4 mm 10.5 cm, No. 18062-12

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

- Flat handle 9 mm wide. Angled at 10°, tip diameter 0.2 mm, 11 cm No. 00125-11
- Tips angled at 45°, tip diameter 0.2 mm, 13.5 cm No. 00276-13
- Highly polished, tip diameter 0.5 mm, angled off center, 11 cm No. 18153-11
Micro Cannulation System for Small Blood Vessels

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 re-used several times. Total length (without stylus) is 8 cm. Detailed instructions are included.

Not for clinical use.

Features:

- Biocompatible Teflon tubing.
- Cannula size 0.33mm O.D. - 0.16 mm I.D.
- A pointed stainless steel stylus (trocar), to aid in vascular penetration and allowing a maximum range of cannula manipulation during insertion.
- Contoured tip for ease of insertion, fitted with shoulder for “tie-in” to prevent accidental removal.
- Female luer connection for linkage to infusion lines.

Micro Cannula

Hard to obtain stainless steel micro cannula in gauges 30, 31, 33 and three lengths: 15, 40 and 90 mm. With medium, 12° bevel. With Luer lock hub. Pkg. of 6

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Vessel Cannulation Forceps

This vessel cannulation forceps is 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. 00608-11