For Minimally Invasive Application of Cerclage Wires

Cerclage Passer

Surgical Technique
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**Cerclage Passer.** For minimally invasive application of cerclage wires.

### Overview

Techniques for the reduction and fixation of fractures, including periprosthetic fractures, frequently use the application of cerclage wires. The cerclage passer instruments are designed for minimally invasive implantation of these wires.

**Note:** Instruments and implants sold separately

<table>
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<th>Cerclage Passer</th>
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<td>Available in two sizes, small (46 mm) and large (60 mm), adapted to anatomy.</td>
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Allows passage of wire around the bone through a small incision.

One size trocar is compatible with both cerclage passer sizes and prevents soft tissue from blocking the cannula during passage.

Designed as two separate halves to facilitate sequential insertion through one incision.
Cerclage Passer. For minimally invasive application of cerclage wires.

**Cerclage Tunneling Device**

Prepares the way to facilitate passage of the cerclage passer.

Available in two sizes, corresponding to the bending diameter of the cerclage passer.

**Cerclage Wire Twister**

Easy assembly and disassembly for cleaning.

For use with 0.8 mm, 1.0 mm, 1.25 mm and 1.5 mm diameter wires.

Ratchet mechanism limits force applied to wire, to prevent breakage.
Preparation

1. Preparation

Optional set

| 105.92 | Wire Instrument and Implant Set |

Complete a preoperative radiographic assessment and prepare the preoperative plan. Position the patient according to the respective fracture requirements on a radiolucent operating table.

Note: For implants, see page 11.

2. Prepare soft tissue tunnel

Instruments

| 03.221.002 | Cerclage Tunneling Device, small |
| 03.221.004 | Cerclage Tunneling Device, large |

Preparation of the tunnel is necessary to facilitate insertion of the cerclage passer.

Choose the appropriate size cerclage tunneling device for the field of application and the fracture. Make an incision and carefully insert the tunneling device over the periosteum both anteriorly and posteriorly around the bone. Pay special attention to perforate the fascia on the linea aspera on the dorsal femur.
1

Insert cerclage passer

Instruments

<table>
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<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>03.221.003</td>
<td>Trocar for Cerclage Passer (2 required)</td>
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<tr>
<td>03.221.010</td>
<td>Cerclage Passer, dividable forceps, small</td>
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</table>

Put one trocar in each tube of the cerclage passer. This prevents soft tissue from entering the cannulated tubes of the cerclage passer. Insert one half of the cerclage passer, then the other, following the prepared soft tissue tunnels.

**Precaution:** To prevent damage, do not apply too much force while inserting the cerclage passer. Deformation of the tubes can result in nonclosure of the instrument when connecting the halves.

The markings on each half ("small," "large") can be used for orientation. When the forceps are connected together, the markings will appear in the same direction.

**Precaution:** When the cerclage passer is in use, pay attention to the sterile field.
Surgical Technique

2

Connect and close cerclage passer

With the cerclage passer in place, connect the forceps. Slide the connecting bar of one half into the corresponding notch of the other half.

Precaution: While connecting the forceps, the tips must not meet. Do not attempt to close the forceps until they are properly connected.

As soon as the forceps are properly connected, close the forceps by bringing the ends of the handles together. The tips will meet.

Secure the closed cerclage passer by locking the bracket. Remove the trocars.

Note: Open and close the bracket by pressing the ends of the handles slightly together. Closed correctly, the bars of the cerclage passer forceps are parallel. The position of the correctly closed cerclage passer can be controlled by moving it up and down, and may be viewed using image intensifier control.

Warning: When closing the cerclage passer, be careful not to damage any soft-tissue structures. Where necessary, enlarge the approach to verify that no soft-tissue structures (mainly the neurovascular structures) are being damaged. Never push the handles medial to bring the halves together; instead, pull them toward the medial cortex. Close the forceps without using force.
Insert cerclage wire

Instrument

391.963 Universal Bending Pliers

Prepare a cerclage wire in the desired length.

Push the cerclage wire through the tube of the closed cerclage passer.

**Note:** The wire must enter the forceps on the side marked with an arrow.

Pliers can be helpful for wire insertion. Insert in small increments to prevent kinking of the wire.

**Precaution:** Do not use pliers for cable passing tube insertion due to tube damages. The cable passing tube must exit the opposite part of the cerclage passer.
4

Remove cerclage passer forceps

Unlock the forceps by opening the bracket.

Disconnect the forceps and remove one half after the other.

When removing the passers, hold the opposite end of the wire to ensure that the inserted cerclage wire remains around the bone.
5
Tighten and fixate

Instruments

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<td>03.221.001</td>
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<td>Cable Cutter</td>
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Insert the cerclage wire through the lower opening of the cerclage wire twister, with the bar separating the two ends of the cerclage wire.

Position the handle in the middle of the threaded section. Do not set the wire diameter of the cerclage twister. The tip of the cerclage wire twister should be close to the bone. Tighten the cerclage wire and wind it around the handle. Take care that the cerclage wire does not obstruct the sleeve.

Apply pretension by pulling the handle back to the blue knob (Figure 1). Adjust the wire diameter on the corresponding scale of the cerclage wire twister by sliding the tip of the arrow to the appropriate number (Figure 1).
Turn the cerclage wire twister clockwise until the ratchet clicks 2 to 3 times, or the desired tension is achieved.

**Note:** While tightening the wire, the whole instrument will turn.

**Warning:** Be careful to apply less tension in osteoporotic bone.

Cut the cerclage wire near the handle and pull out the cerclage wire twister.

Slide the cable cutter down the cerclage wire and cut it near the bone. Use the front end of the cable cutter to bend the twisted end of the cerclage wire to the bone.

**Alternative technique**
Bend the twisted end of the wire to the bone, then cut.

**Note:** The cable cutter is designed to cut cerclage wires and cables only. Do not use on K-wires or Elastic Nails, which may cause the instrument to break.
**Cerclage Wire Coil**

- Length 10 m

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<tr>
<th>Diameter (mm)</th>
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<tbody>
<tr>
<td>291.05</td>
<td>1.0</td>
</tr>
<tr>
<td>291.06</td>
<td>1.25</td>
</tr>
<tr>
<td>291.09</td>
<td>0.8</td>
</tr>
<tr>
<td>291.13</td>
<td>1.5</td>
</tr>
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</table>
**Instruments**

03.221.001 Cerclage Wire Twister

03.221.002 Cerclage Tunneling Device, small

03.221.003 Trocar for Cerclage Passer

03.221.004 Cerclage Tunneling Device, large

03.221.010 Cerclage Passer, dividable forceps, small

03.221.011 Cerclage Passer, dividable forceps, large

03.607.513 Cable Cutter

391.963 Universal Bending Pliers

For detailed cleaning and sterilization instructions, please refer to [www.synthes.com/cleaning-sterilization](http://www.synthes.com/cleaning-sterilization) or sterilization instructions, if provided.

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