SONGER® CABLE SYSTEM
Surgical Technique
This description alone does not provide sufficient background for direct use of DePuy Synthes products. Instruction by a surgeon experienced in handling these products is highly recommended.

**Processing, Reprocessing, Care and Maintenance**

For general guidelines, function control and dismantling of multi-part instruments, as well as processing guidelines for implants, please contact your local sales representative or refer to:

http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance

For general information about reprocessing, care and maintenance of Synthes reusable devices, instrument trays and cases, as well as processing of Synthes non-sterile implants, please consult the Important Information leaflet (SE_023827) or refer to:

http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance
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Indications

The DePuy Spine Cable System can be utilized anywhere monofilament wire has been previously found to be indicated. Such indications might include, but are not limited to:

1. Spinal trauma surgery – cables can be used in sub-laminar, interspinous, or facet wiring techniques.
2. Spinal reconstructive surgery – cables are incorporated into constructs for the purpose of correction of spinal deformities; such as scoliosis, kyphosis, spondylolisthesis, etc.
3. Spinal degenerative surgery – cables may be used as an adjunct to spinal fusions.
4. Orthopaedic trauma surgery – cables are used to secure fractures of the olecranon, patella, femur, humerus, and the ankle. They may also be used to reduce and secure acromioclavicular dislocations.
5. Orthopaedic reconstructive surgery – cables are used to attach the greater trochanter after trochanteric osteotomy after total hip arthroplasty.

This system is also indicated for use in conjunction with other medical implants of the same material (such as Luque rods) whenever the utilization of the system will help secure attachment of the implant for the applications listed above.
Contraindications

May include but are not limited to the following:

1. Presence of a documented infection.
2. The combination of DePuy Spine Cable System by Songer with one or more monofilament wires in a single construct.
3. The physical contact of the DePuy Spine Cable System by Songer with any other metal implant made up of a different type of metal. For example, the stainless steel cable should not be used with titanium implants.
4. Any suspected or documented metal allergy or intolerance.
5. The presence of severe osteopenia and/or osteoporosis, or the presence of marked or rapid bone absorption metabolic bone disease, cancer or any other tumor due to any tumor like condition of the bone may compromise the fixation achieved by the cable.
6. Any patient with inadequate tissue coverage over the site of the implantation of the cable.
7. A cable should not be used in any anatomical location in which it would interfere with other critical structures such as nerves, blood vessels or other vital structures.
8. This system should not be used in any medical or surgical situation that would preclude the benefit of surgery such as an undiagnosed infection, end stage malignant disease or other unexplained diseases.
9. Severely comminuted fractures in which the fragments are too small or too numerous to be adequately fixed or maintained in a reduced position.
10. Any situation not described in the above indications.
It is recommended to use SONGER Titanium Double Cables with Leader, allowing two cables to be applied simultaneously at each vertebral level using one sublaminar passage (except at the end of the construct where it is necessary to preserve the interspinous ligament).

**Step 1**

Contour the cable leader in the shape of a “C”. Starting at the most caudal cervical level, introduce the leader inferiorly beneath and around the laminae. The cable is passed in the epidural space, which is exposed by removing the ligamentum flavum. If the correct plane is utilized, the cable should pass freely. If resistance is encountered, the dissection should be carefully inspected to ensure that the epidural space is properly exposed. As the leader emerges on the superior side, it is caught with rubber-shod forceps (a hemostat) or blunt hook, and pulled upwards to maintain tension on the cable (Figure 1a). The tip of the leader is cut and the cables are separated laterally and clamped at each side of the wound (Figure 1b). In the same manner, pass cables at all remaining cervical levels (Figure 1c).
Step 2

• Utilizing the Crimp Inserter, position the Top Hat Crimp into the jaws of the Crimper-Tensioner Device, such that the brim of the crimp is on the outside of the Crimper-Tensioner jaws.
• Ratchet the Crimper-Tensioner Device one click, securing the Top Hat within the instrument (Figure 2).

Step 3

• Beginning with the most distal cable, the leader is threaded through the Top Hat Crimp, up the instrument shaft and through the spindle of the Crimper-Tensioner Device.
• Adjust the Torque Wrench to the desired tension level and key into the hex of the Crimper-Tensioner Device. Turn the Torque Wrench clockwise until the wrench slips, indicating desired tension has been achieved (Figure 3a). Gently squeeze handles of Crimper-Tensioner Device until the ratchet releases indicating the crimp is fully swaged.
• Cut excess cable flush with crimp.
• In same manner, secure all cables by crimping remaining Top Hat Crimps (Figure 3b).

NOTE: In the cervical spine, the usual Torque Wrench range recommended is between 8 to 10 lbs. In rheumatoid arthritis cases, the torque range should be decreased to 6 to 8 lbs.
Optional

MOUNTAINEER® OCT Spinal System is indicated for use with the SONGER Cable System.

• With rods loosely secured, Cable Connectors are positioned and final tightening (crimping) of cables is performed.
• Attach the Cable Connector to the Universal Connector Holder (Figure 4a).
• Beginning with the most distal end of the cable, pass the leader through the Cable Connector and then through the islet of the proximal end of the cable (Figure 4b). Continue to pull leadered end through the islet while simultaneously guiding Cable Connector onto rod (Figure 4c). Loosely secure connector by tightening the Cable Connector Set Screw with the X15 Hex Lobe Screwdriver (Figure 4d).
• In the same manner, introduce all Cable Connectors and secure, provisionally, to the rods (Figure 4e).

NOTES:
• Final tightening of Cable Connectors is done once all cables are crimped.
• Titanium cables must be used when connecting cables to components of the MOUNTAINEER OCT Spinal System to avoid electrolysis from dissimilar metals.
Optional

- Perform final tightening of all Cable Connector Set Screws, using the X15 Hex Lobe Torque Driver. The Set Screw is completely tightened when the X15 Hex Lobe Torque Driver automatically releases (Figure 5).
- Cable Connector Set Screws are removed with the X15 Hex Lobe Torque Driver.

Figure 5
-songer cable options

**Instruments**

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<tr>
<td>Material</td>
<td>Titanium or Stainless Steel</td>
</tr>
<tr>
<td>Gauge (Diameter)</td>
<td>18 gauge (1mm)</td>
</tr>
<tr>
<td>Single Cable Option</td>
<td>22” (Rigid Leader – Top Hat Crimp)</td>
</tr>
<tr>
<td>Single Isola Cable Option</td>
<td>18.25” (Malleable Leader with Looped Tip &amp; Eyelet)</td>
</tr>
<tr>
<td>Double Cable Option</td>
<td>18.5” (Malleable Leader with Eyelet)</td>
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<tr>
<td>Multi-Filament Wire System</td>
<td>Yes</td>
</tr>
<tr>
<td>Sterility</td>
<td>Sterile &amp; Non Sterile</td>
</tr>
<tr>
<td>Torque Wrench Range – Cervical Spine</td>
<td>8 – 10 lbs.</td>
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<tr>
<td>Torque Wrench Range – Cervical Spine, Rheumatoid Arthritis</td>
<td>6 – 8 lbs.</td>
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