

Spine Cable System.

Handling Technique



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Warning

This description is not sufficient for immediate application of the instrumentation. Instruction by a surgeon experienced in handling this instrumentation is highly recommended.

Indications/Features

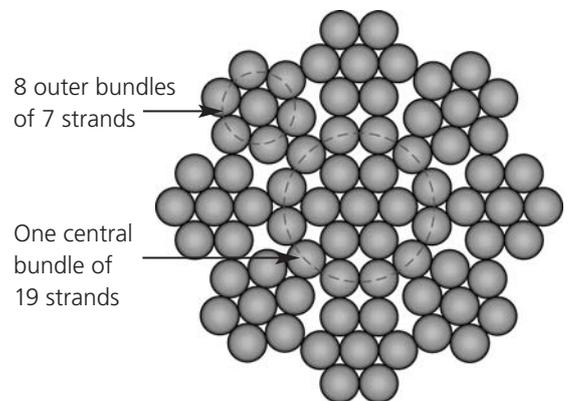
Indications

As with monofilament wire, the Spine Cable System is indicated for the following spinal applications:

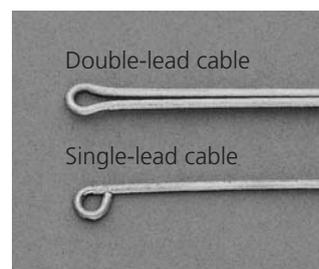
- Spinal trauma: for sublaminar, interspinous, or facet wiring
- Spinal reconstruction: to correct spinal deformities, scoliosis, kyphosis, and spondylolisthesis
- Spinal degenerative surgery: as an adjunct to spinal fusions

Features

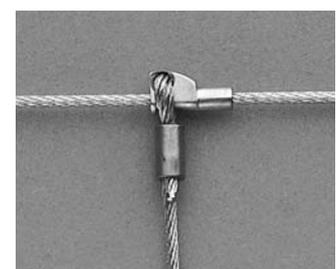
- 1.0 mm diameter cable fabricated with an $(8 \times 7) + (1 \times 19)$ weave designed for flexibility and control
- Cable assemblies available in Ti-6Al-7Nb alloy (TAN) and stainless steel
- Retrieval loop at the end of the cable facilitates passing the cable sublaminarly
- Available in single- and double-lead configurations
- Crimp is an integral part of the cable



Cross-sectional view of cable



Cable retrieval loops



Crimp integral to the cable

Instruments

Cable Retriever (321.745)

- Facilitates sublaminar cable passage



Cable Cutter, standard (391.905)

- Cuts cable flush with head of crimp



Tensioner/Crimper for Spine Cable (321.131)

- Automatically releases when the crimp is fully secured
- Single instrument applies tension and crimps



Pretensioner for Spine Cable (321.744)

- Holds cable tension prior to crimping



Torque-Limiting Handle (321.132)

- For setting the tension level



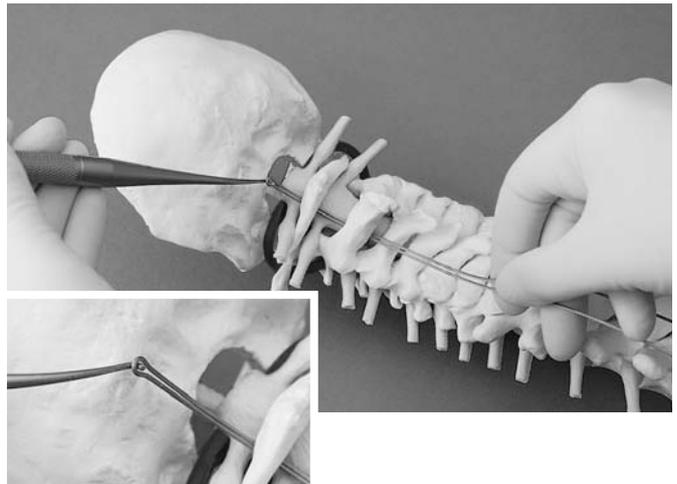
Handling technique: double-lead cable

In the following handling technique, sublaminar wiring is described using the example of a C1/C2 wiring procedure. The procedure of sublaminar wiring for other indications is similar.

1

Pass leader

Pass the leader of the double-lead cable under the lamina and use the Cable Retriever (321.745) to catch the retrieval loop on the tip of the leader. Gently pull the cable through until the leader is completely exposed.



2

Cut leader tip

Using the Cable Cutter (391.905), remove only the tip of the leader. Separate the cable leaders.



3

Thread cable through crimp

Thread the cable leader through the crimp sleeve and pull up the slack in each cable.



4

Attach pretensioners

Gently pull each cable sequentially for provisional tightening. Next, depress the button on the Pretensioner (321.744) and pass the cable in the direction indicated on the pretensioner. Releasing the button automatically locks the cable.

Note: Align the button on the pretensioner in such a way that it will not hinder the use of the tensioner/crimper.

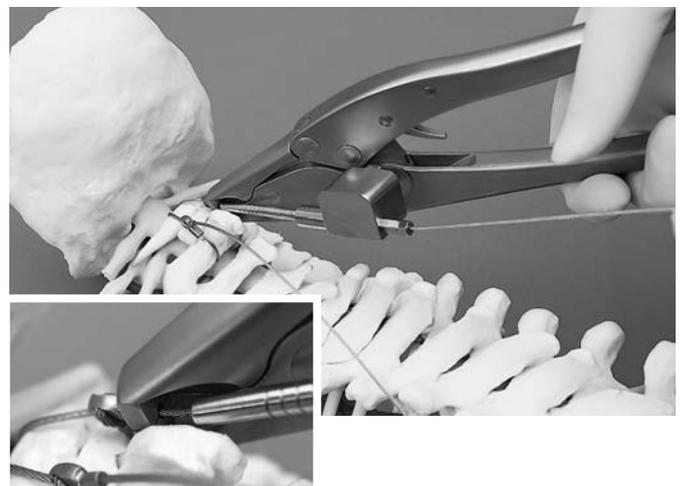


5

Attach tensioner/crimper

Align the jaws of the Tensioner/Crimper (321.131) to grasp the crimp sleeve on the cylindrical barrel. Gently squeeze the handle until a single, audible click is heard.

Note: One click only is required to securely fasten the crimp. The second and the third click will definitely crimp the cable.



6

Provisionally tighten cable

Pass the cable end through the spool at the end of the tensioner/crimper handle and pull any excess slack out of the cable.

Note: The holes in the spool must be aligned with the line etched on the spool.



7

Adjust torque setting

Select the desired torque by adjusting the setting on the Torque-Limiting Handle (321.132). Grasp the knurled wheel on the handle and pull it toward the working tip. Rotate the wheel to the desired torque setting and release.

Note: The torque indications are marked in inch-pounds.

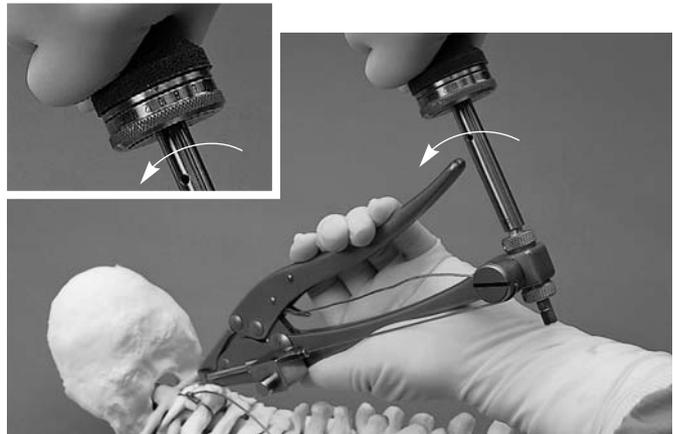


Torque Inch-pounds	Torque Nm (approx.)
4	0.5
6	0.7
8	0.9
10	1.1
12	1.4
14	1.6
16	1.8

8

Tension cable

Attach the torque-limiting handle to the tensioner/crimper. Apply tension by rotating the torque-limiting handle in the direction noted on the shaft until it slips. Slide the pretensioner forward to maintain tension if the tensioner/crimper is to be removed.



9

Tension second cable

Repeat steps 5–8 for the second cable. Remove the torque-limiting handle and the tensioner/crimper from the construct when tensioning is complete.

Notes: The tension in each cable can be rechecked or increased sequentially a number of times.

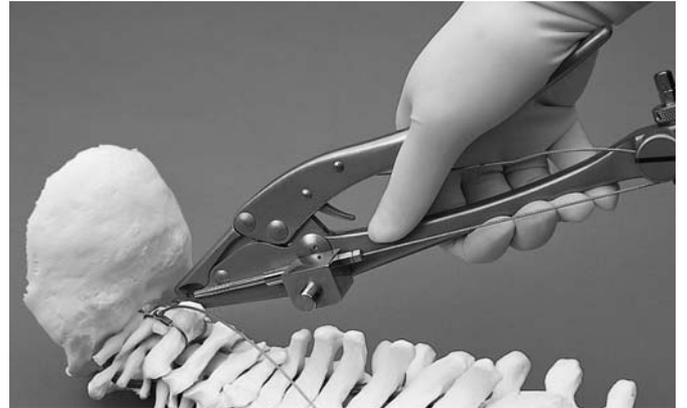
Alternatively, two tensioner/crimpers may be used in place of two pretensioners.

10

Secure crimps

Secure each crimp by grasping the crimp sleeve in the jaws of the tensioner/crimper and squeezing the handles until they automatically release. (This is a safety mechanism to ensure the sleeve is fully crimped.)

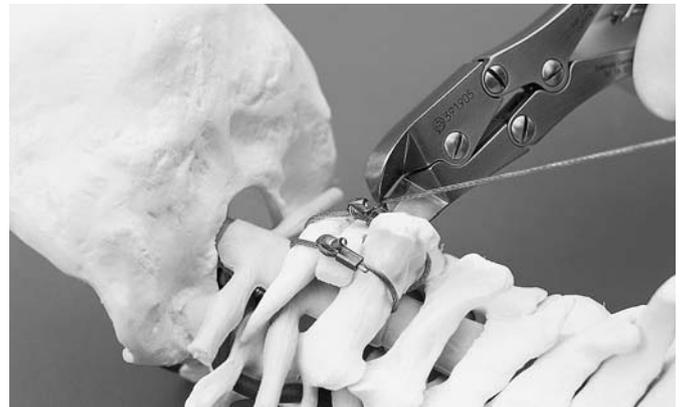
Remove the tensioner/crimper and pretensioners.



11

Remove excess cable

Cut the cables flush with the tip of the crimp sleeves using the cable cutter.



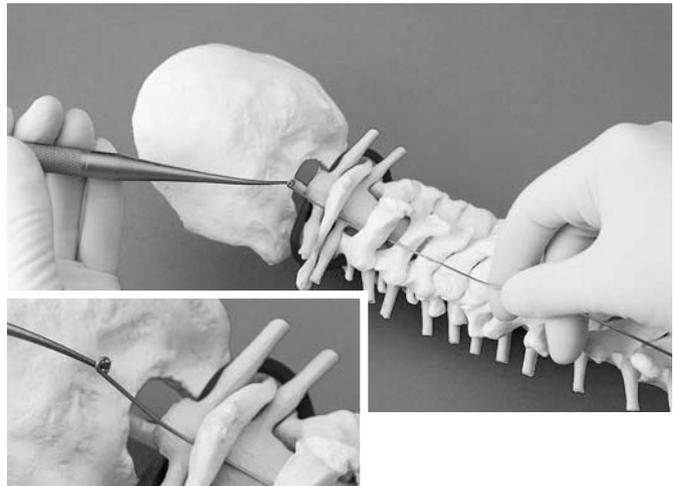
Handling technique: single-lead cable

In the following handling technique, sublaminar wiring is described using the example of a C1/C2 wiring procedure. The procedure of sublaminar wiring for other indications is similar.

1

Pass leader

Pass the leader of the single-lead cable under the lamina and use the Cable Retriever (321.745) to catch the retrieval loop on the tip of the leader. Gently pull the cable through until the leader is completely exposed.



2

Cut leader tip

Using the Cable Cutter (391.905), remove only the tip of the leader.



3

Thread cable through crimp

Thread the cable leader through the crimp sleeve and pull up the slack in the cable.

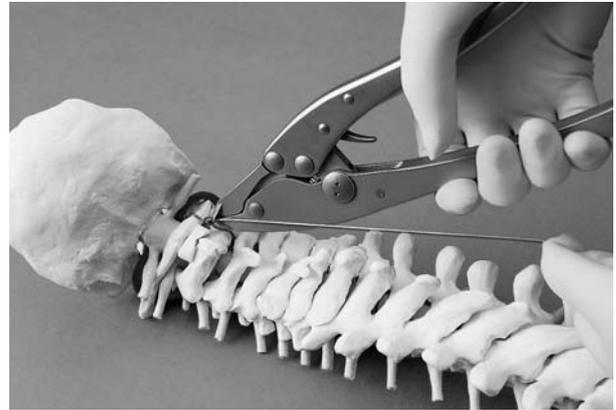


4

Attach tensioner/crimper

Grasp the crimp sleeve with the jaws of the Tensioner/Crimper (321.131). Gently squeeze the handles until a single, audible click is heard.

Note: One click only is required to securely fasten the crimp. The second and the third click will definitely crimp the cable.

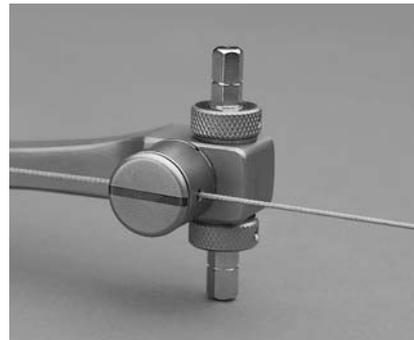


5

Provisionally tighten cable

Pass the cable end through the spool at the end of the tensioner/crimper handle and pull any excess slack out of the cable.

Note: The holes in the spool must be aligned with the line etched on the spool.



6

Adjust torque setting

Select the desired torque by adjusting the setting on the Torque-Limiting Handle (321.132). Grasp the knurled wheel on the handle and pull it toward the working tip. Rotate the wheel to the desired torque setting and release.

Notes: The torque indications are marked in inch-pounds.

Torque Inch-pounds	Torque Nm (approx.)
4	0.5
6	0.7
8	0.9
10	1.1
12	1.4
14	1.6
16	1.8



7

Tension cable

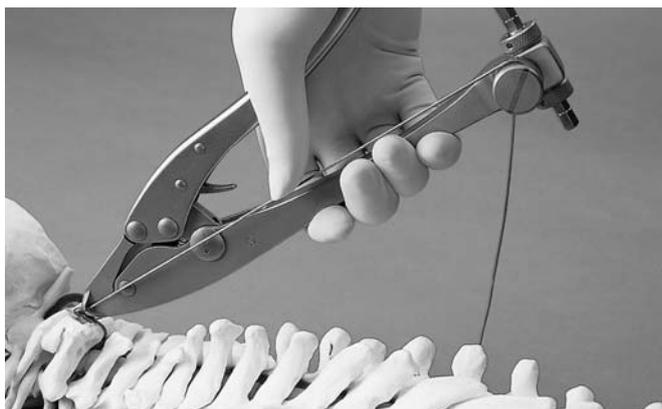
Attach the torque-limiting handle to the tensioner/crimper. Apply tension by rotating the torque-limiting handle in the direction noted on the shaft until it slips. Remove the torque-limiting handle.



8

Secure crimp

Secure the crimp by squeezing the handles until they automatically release. (This is a safety mechanism to ensure the sleeve is fully crimped.) Remove the tensioner/crimper.



9

Remove excess cable

Cut the cable flush with the tip of the crimp sleeve using the cable cutter.





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036.000.366 SE_047755 AA 51060009 © Synthes 2006 Printed in Switzerland Subject to modifications.