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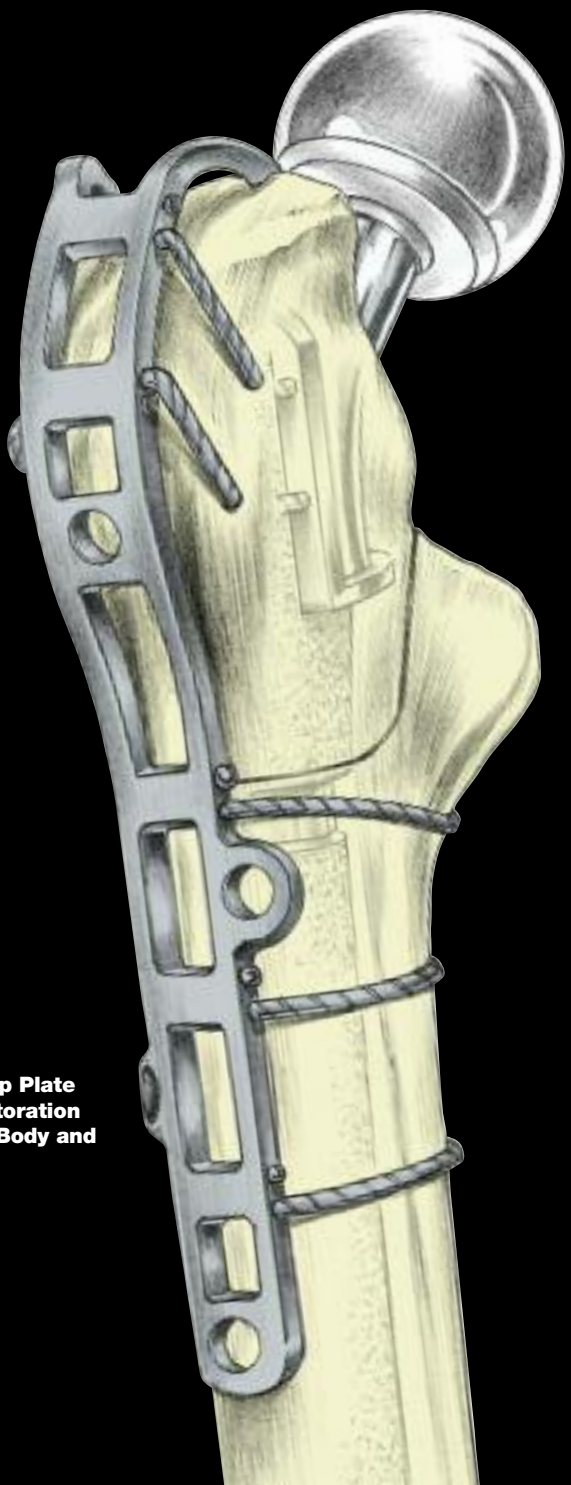
Orthopaedics

Dall-Miles Recon and Trauma Cable System

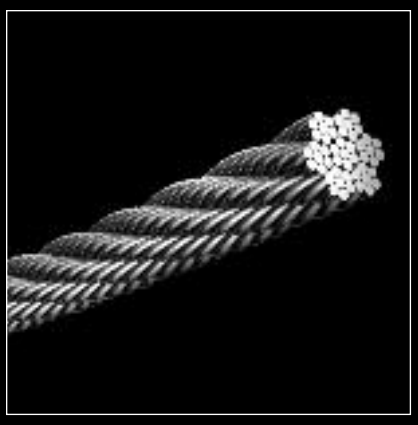
Surgical Protocol



Trochanteric Grip Plate shown with Restoration Modular Calcar Body and Plasma Stem

- Trochanteric Reattachment Using the Trochanteric Grip or Grip Plate
- Cerclage Applications

Trochanteric Grip



Dall-Miles Cable

Product Overview

Trochanteric Grips

- Low profile, 4 mm thickness.
- Diverging proximal hooks to capture trochanter.
- Sharp, distal spikes for rotational stability.
- Available in Small, Medium, and Large sizes in Vitallium and Stainless Steel.

Dall-Miles Trochanteric Grip

Trochanteric Grip Plates

- Malleable to fit patient's anatomy.
- Low profile, 4 mm thickness.
- Diverging proximal hooks to capture trochanter.
- Screw hole options to augment fixation and provide rotational stability.
- Available in 2 proximal sizes with 3 length options each in Vitallium and Stainless Steel.

Dall-Miles Trochanteric Grip Plate

Dall-Miles Cables

- Over 20 years of clinical history.
- Over 100 published papers demonstrating clinical success.
- Patented manufacturing process provides superior fatigue properties.
- Available in Vitallium and Stainless Steel, 1.6 mm and 2.0 mm sizes.

Dall-Miles Cable

Ordering Information

Trochanteric Grips and Grip Plates

Vitallium Trochanteric Grips

Cat. No.	Description
6704-3-070	Small Grip w/ 2, 2.0 mm Cables
6704-3-080	Medium Grip w/ 2, 2.0 mm Cables
6704-3-090	Large Grip w/ 2, 2.0 mm Cables

Vitallium Trochanteric Grip Plates

6704-3-081	Medium, 100 mm long w/ 2, 2.0mm Cables
6704-3-082	Medium, 150 mm long w/ 2, 2.0mm Cables
6704-3-083	Medium, 200 mm long w/ 2, 2.0mm Cables
6704-3-091	Large, 110 mm long w/ 2, 2.0mm Cables
6704-3-092	Large, 160 mm long w/ 2, 2.0mm Cables
6704-3-093	Large, 210 mm long w/ 2, 2.0mm Cables

Stainless Steel Trochanteric Grips

3704-2-070	Small Grip
3704-2-080	Medium Grip
3704-2-090	Large Grip

Stainless Steel Trochanteric Grip Plates

3704-2-081	Medium, 100 mm long
3704-2-082	Medium, 150 mm long
3704-2-083	Medium, 200 mm long
3704-2-091	Large, 110 mm long
3704-2-092	Large, 160 mm long
3704-2-093	Large, 210 mm long

Stainless Steel Compression Plates

3704-3-100	5 Hole/6 Groove Compression Bone Plate
3704-3-110	7 Hole/8 Groove Compression Bone Plate
3704-3-120	9 Hole/10 Groove Compression Bone Plate
3704-3-130	11 Hole/12 Groove Compression Bone Plate

Cables and Sleeves

Vitallium Cables and Sleeves

Cat. No.	Description
6704-8-236	1.6 mm Vitallium Cable
6704-8-240	2.0 mm Vitallium Cable
6704-4-016	Small Vitallium Cable Sleeve (for use with 1.6 mm Cable)
6704-4-020	Medium Vitallium Cable Sleeve (for use with 2.0 mm Cable)
6704-0-420	1.6 mm Vitallium Beaded Cable/Sleeve Set
6704-0-520	2.0 mm Vitallium Beaded Cable/Sleeve Set
6704-0-410	1.6 mm Vitallium Cable/Sleeve Set
6704-0-510	2.0 mm Vitallium Cable/Sleeve Set

Stainless Steel Cables and Sleeves

3704-8-236	1.6 mm SS Cable
3704-8-240	2.0 mm SS Cable
3704-1-100	Small SS Cable Sleeve (for use with 1.6 mm Cables)
3704-1-110	Medium SS Cable Sleeve (for use with the 2.0 mm Cables)
3704-0-040	1.6 mm Beaded SS Cable/Sleeve Set
3704-0-050	2.0 mm Beaded SS Cable/Sleeve Set
3704-0-410	1.6 mm SS Cable/Sleeve Set
3704-0-510	2.0 mm SS Cable/Sleeve Set

Screws

Titanium SPS 4.5 Cortical Screws, Self Tapping

Cat. No.	Description
601014	14 mm Titanium Screw
601016	16 mm Titanium Screw
601018	18 mm Titanium Screw
601020	20 mm Titanium Screw
601022	22 mm Titanium Screw
601024	24 mm Titanium Screw
601026	26 mm Titanium Screw
601028	28 mm Titanium Screw
601030	30 mm Titanium Screw
601032	32 mm Titanium Screw
601034	34 mm Titanium Screw
601036	36 mm Titanium Screw
601038	38 mm Titanium Screw
601040	40 mm Titanium Screw
601042	42 mm Titanium Screw
601044	44 mm Titanium Screw
601046	46 mm Titanium Screw
601048	48 mm Titanium Screw
601050	50 mm Titanium Screw
601052	52 mm Titanium Screw
601054	54 mm Titanium Screw
601056	56 mm Titanium Screw
601058	58 mm Titanium Screw
601060	60 mm Titanium Screw
601062	62 mm Titanium Screw
601064	64 mm Titanium Screw
601066	66 mm Titanium Screw
601068	68 mm Titanium Screw
601070	70 mm Titanium Screw

Stainless Steel SPS 4.5 Cortical Screws, Self Tapping

340614	14 mm Stainless Steel Screw
340616	16 mm Stainless Steel Screw
340618	18 mm Stainless Steel Screw
340620	20 mm Stainless Steel Screw
340622	22 mm Stainless Steel Screw
340624	24 mm Stainless Steel Screw
340626	26 mm Stainless Steel Screw
340628	28 mm Stainless Steel Screw
340630	30 mm Stainless Steel Screw
340632	32 mm Stainless Steel Screw
340634	34 mm Stainless Steel Screw
340636	36 mm Stainless Steel Screw
340638	38 mm Stainless Steel Screw
340640	40 mm Stainless Steel Screw
340642	42 mm Stainless Steel Screw
340644	44 mm Stainless Steel Screw
340646	46 mm Stainless Steel Screw
340648	48 mm Stainless Steel Screw
340650	50 mm Stainless Steel Screw
340652	52 mm Stainless Steel Screw
340654	54 mm Stainless Steel Screw
340656	56 mm Stainless Steel Screw
340658	58 mm Stainless Steel Screw
340660	60 mm Stainless Steel Screw
340662	62 mm Stainless Steel Screw
340664	64 mm Stainless Steel Screw
340666	66 mm Stainless Steel Screw
340668	68 mm Stainless Steel Screw
340670	70 mm Stainless Steel Screw

Dall-Miles Recon and Trauma Cable System

Surgical Protocol

Surgical Protocol for Trochanteric Reattachment Using the Trochanteric Grip or Grip Plate and for Cerclage Applications Using Beaded Cables and Single-Sided Tensioner.

System Overview

The Dall-Miles Recon and Trauma Cable System provides the surgeon with a variety of methods for achieving trochanteric reattachment and for cerclage fixation:

- Supplemental fracture fixation of long bones.
- Cerclage banding using either stainless steel or Vitallium cables.

The Dall-Miles Grip and Grip Plate are designed to provide superior fixation for reattachment of the greater trochanter following osteotomy or fracture. The Grip Plate provides additional distal fixation to help counteract the torsional forces of the abductor muscles.

The new Dall-Miles Grips and Grip Plates are designed to be used with 2.0mm cables. Non-beaded cables are recommended for the Grip and the proximal portion of the Grip Plate while beaded or non-beaded can be used in the distal section of the Grip Plate.

The Dall-Miles Grip Plate is available in both Vitallium and Stainless Steel. Vitallium cables must be used with the Vitallium Grip/Grip Plate and Stainless Steel cables must be used with the Stainless Steel Grip/Grip Plate.

The Dall-Miles Trochanteric Grip Plate can be augmented with Stryker SPS cortical bone screws to provide additional rotational stability. A range of Ø4.5mm screws commencing with 14mm length are available in both Titanium and Stainless Steel. Titanium screws must be used with the Vitallium Grip Plate and Stainless Steel screws must be used with the Stainless Steel Grip Plate. A Ø3.2mm drill bit should be used to prepare a pilot hole for the screw.

Indications

- Cables and Cable Sleeves are indicated for trochanteric reattachment and sternotomy applications; trauma surgery of the shoulder, elbow, knee, hip, and ankle; spinal wiring, to stabilize bone graft material or prostheses; and for supplementary cerclage fixation with plates and screws for fracture fixation.
- The Dall-Miles Trochanteric Grips and Grip Plates are indicated for use in the fixation of the greater trochanter due to trochanteric fracture or osteotomy with intramedullary fixation as the primary device.
- The Dall-Miles Grip Plate is additionally indicated for use in the fixation of the greater trochanter due to extended trochanteric osteotomies.
- Stainless Steel Compression Plate is indicated for fracture fixation of long bones when screw and plate fixation alone is inadequate because of poor bone quality or when screws cannot be placed due to the presence of internal fixation devices.

Contraindications

Absolute contraindications include:

- Overt infection.
- Distant foci of infections (which may cause hematogenous spread to the implant site).
- Skeletally immature patients.
- Cases where there is a loss of abductor musculature, poor bone stock or poor skin coverage around the hip joint.
- Compromised vascularity that would inhibit adequate blood supply to the fracture or operative site.

Contraindications for Grip Plate

- Periprosthetic fractures.

This publication sets forth recommended procedures for using Stryker Orthopaedics devices and instruments. It offers guidance that you should heed, but, as with any such technical guide, each surgeon must consider the particular needs of each patient and make appropriate adjustments when and as required.

Dall-Miles Recon and Trauma Cable System
Surgical Protocol

Trochanteric Reattachment Surgical Protocol

The following technique assumes that the acetabular component has been implanted and that the femur has been prepared for the selected femoral prosthesis.

1 If implanting a Grip Plate, the Trial Instrument can be used to assess the trochanteric size (Medium or Large) and optimal length of plate. **(Figure 1)**. **Trial not yet available**.

2 Position the Trochanteric Cable Passer around the proximal femur (from posterior to anterior) and pass the two cables necessary for the proximal portion of the implant.

3 Using the Introducer, position the Grip/Grip Plate on the femur, adjusting to obtain appropriate trochanter placement. The Trochanter Holding Forceps may be used to assist in retaining the desired position of the trochanter.

4a If implanting a Grip, engage the distal spikes in the bone once the position of the proximal hooks is obtained.

4b If implanting a Grip Plate, note the fit on the femur. The Grip Plate may be bent at the grip/plate junction to better fit the femur using standard bending irons.

5 Pass the free ends of the cable through the implant, adjusting to have approximately equivalent lengths on each side of the implant. For the distal section of the Grip Plate, pass the appropriate number of beaded or non-beaded cables (1, 3, or 5 depending on the length of the Grip Plate chosen).

NOTE: Non-beaded cables are recommended for the Grip and the proximal portion of the Grip Plate.

6 Using the Femoral Cable Passers, pass cables around femur and through distal portion of Grip Plate **(Figure 2).**

NOTE: Beaded or Non-Beaded Cables may be used according to surgeon preference. The Single-Sided Tensioner must be used with the Beaded Cables and the Double-Sided Tensioner must be used with the Non-Beaded Cables.

Figure 1

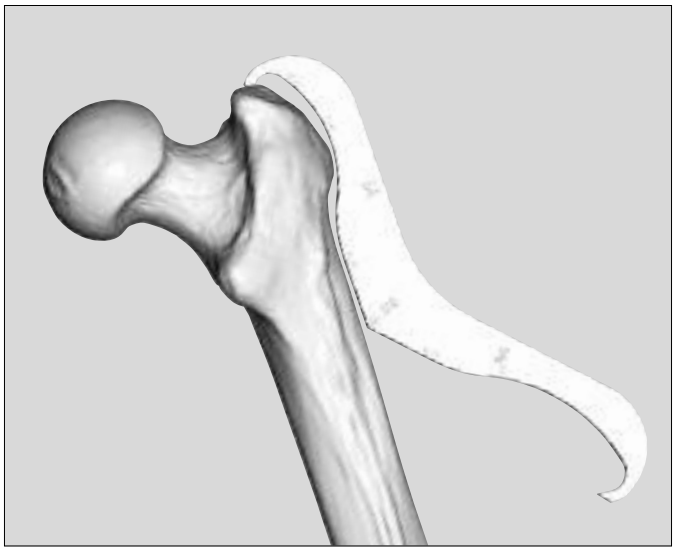
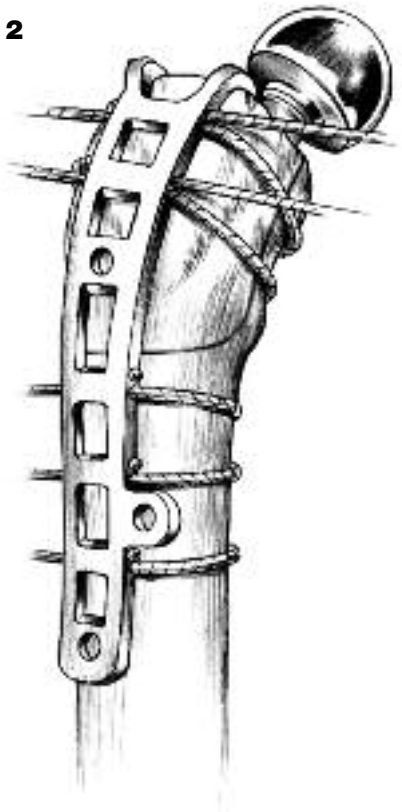


Figure 2



7 Apply the two Double-Sided Tensioners to the proximal cables and tighten the cables by turning the Tensioner knob clockwise. The two cables may be tensioned simultaneously or sequentially, maintaining the position of the implant and trochanter. Using the appropriate Tensioner, tighten the distal cables that pass through the plate portion of the implant.

NOTE: The Single-Sided Tensioner must be used with the Beaded Cables and the Double-Sided Tensioner must be used with the Non-Beaded Cables.

NOTE: The Tension-Retaining Device may be used in conjunction with the Beaded Cables in the distal portion of the Grip Plate. This will allow retentioning of the cables as the bone fragment is compressed. Please see Page 7 of this technique for instructions on how to use the Tension-Retaining Device.

8 Crimp the bridges of the Grip/Grip Plate after desired tension is obtained (**Figure 3**). The order of crimping is not important. It may be necessary to remove soft tissue adjacent to the bridges in order to ensure proper location and seating of the Crimp Tool's jaws.

Place the Crimp Tool on the bridge of Grip and squeeze the handles until the ratchet mechanism disengages. The ratchet will hold the tool in place if it is necessary to reposition the hands. Once all bridges have been thoroughly crimped, the tensioners are removed.

9 Use the Cable Cutter to cut the free ends of the cables.

Pass the free end of the cable through the Cutter tip, introducing it on the side with the laser mark that reads: "CUT THIS SIDE" (**Figure 4**).

Push the Cutter as flush against the Grip or Grip Plate as possible (**Figure 5**). This is important in order to leave as short a tag as possible. Pull the Cutter handle to cut the cable.

Do not use an ordinary wire cutter as a long tag may be left and may cause soft tissue irritation.

10 Plate fixation may be augmented using Stryker SPS Ø4.5mm cortical bone screws in the provided screw holes. A Ø3.2mm drill bit should be used to prepare a pilot hole for the screw.

NOTE: A range of Ø4.5mm screws commencing with 14mm length are available in both Titanium and Stainless Steel. Titanium screws must be used with the Vitallium Grip Plate and Stainless Steel screws must be used with the Stainless Steel Grip Plate. Please see page 3 of this technique for corresponding catalog numbers.

Figure 3

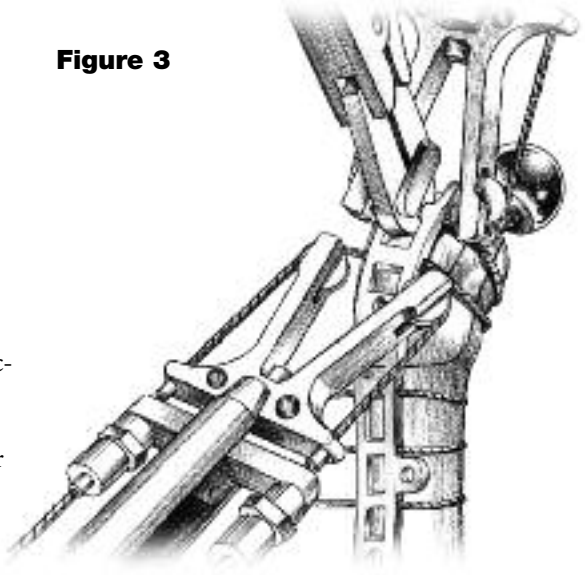


Figure 4

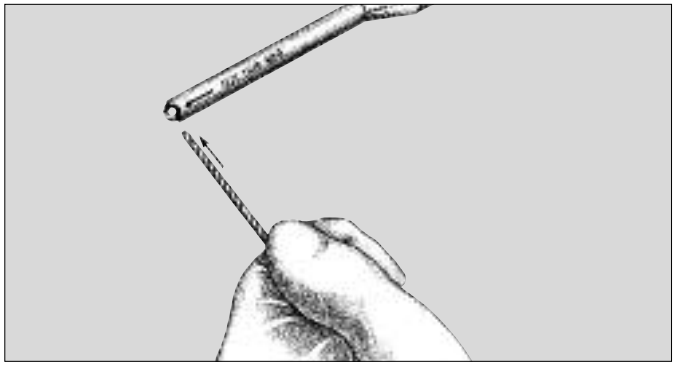
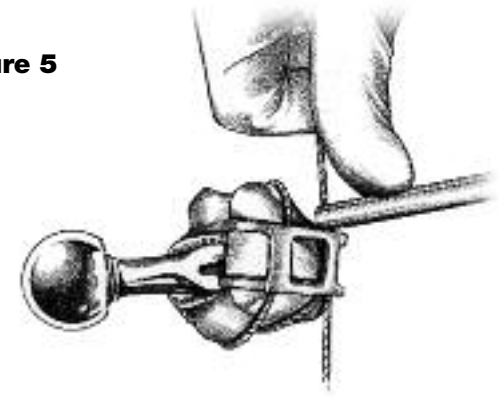


Figure 5



Cerclage Protocol Using Beaded Cables

Dall-Miles Beaded Cables are recommended for use with the Single-Sided Tensioner for cerclage; while Dall-Miles Non-Beaded Cables are recommended for use with the Double-Sided Tensioner.

1 Position the sleeve at the beaded end of the cable **(Figure 1).**

2 Once the Cable Passer is positioned, insert the cable through the end of the passer farthest from the passer handle **(Figure 2)**. Remove the passer.

Pass the free end of the cable through the sleeve ***and always position the sleeve with the narrow, laser-marked side facing the bone*** **(Figure 3)**. Manually tighten sleeve against the bone **(Figure 4)**. If necessary, the Sleeve Holding Forceps can be used to position the sleeve **(Figure 4 inset)**.

3 With the Single-Sided Tensioner in the fully open position (tensioner knob turned fully counter-clockwise), insert the cable end through the nozzle tip; position the tip flush against the side of the sleeve. Turn knob clockwise until desired tension is achieved (do not exceed 150lb tension) **(Figure 5)**.

Figure 1

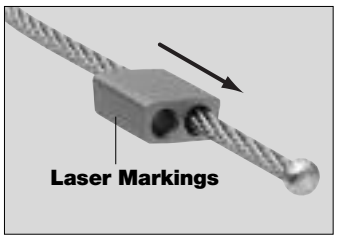
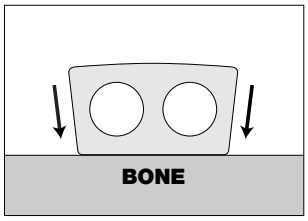


Figure 2

Figure 3



Narrow side with laser markings facing the bone.

Figure 4

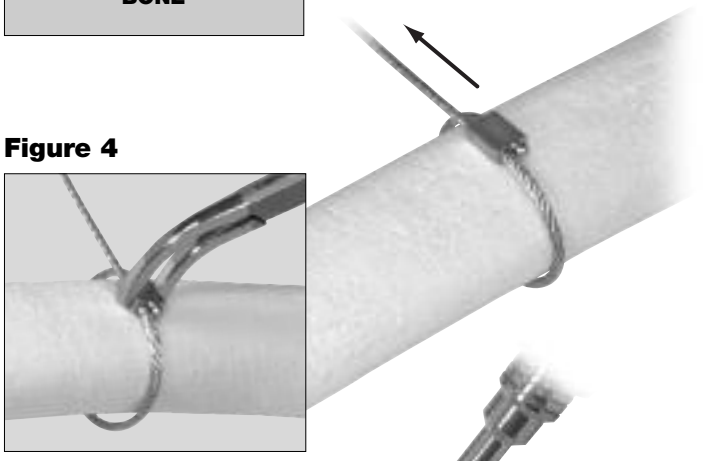
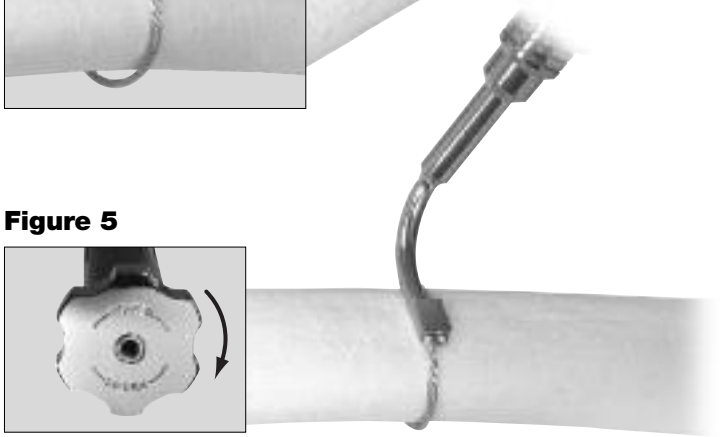


Figure 5



Optional Technique Using Tension Retaining Devices

An optional technique is to use the Dall-Miles Tension Retaining Device to hold a tensioned cable in place while additional cables are placed using the same Single-Sided Tensioner. Once several cables are in place and sequentially tensioned, the Tension Retaining Devices enable the surgeon to go back and retension cables as needed before final crimping.

3a Turn winged screw on the Tension Retaining Device counterclockwise until it is opened.

3b Insert the free cable end through the long nozzle tip of the Tension Retaining Device. Advance the Tension Retaining Device along the cable until the long nozzle tip is flush against the sleeve.

3c With the Single-Sided Tensioner knob in the fully opened position, insert the free cable end through the curved Tensioner nozzle tip. While advancing, take up any cable slack and position the Tensioner tip inside the recessed body of the Tension Retaining Device (**Figure 6**).

3d Turn the Single-Sided Tensioner knob clockwise until desired tension is achieved (do not exceed 150lb of tension). Turn winged screw on Tension Retaining Device clockwise until it is tightened (**Figure 7**). Remove the Tensioner by turning knob counterclockwise until it releases. Each cable can then be incrementally tensioned before final crimping (**Figure 8**).

Figure 6

Figure 7

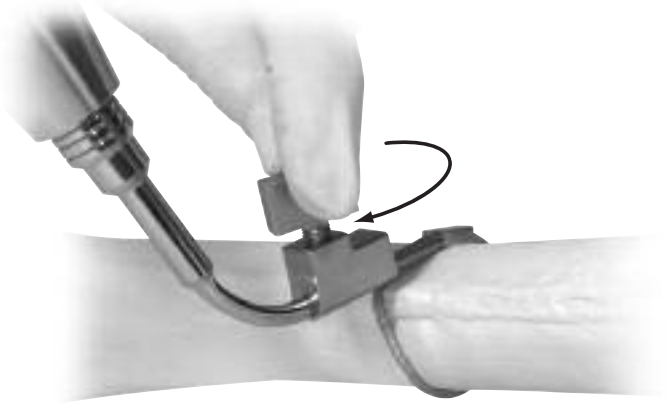
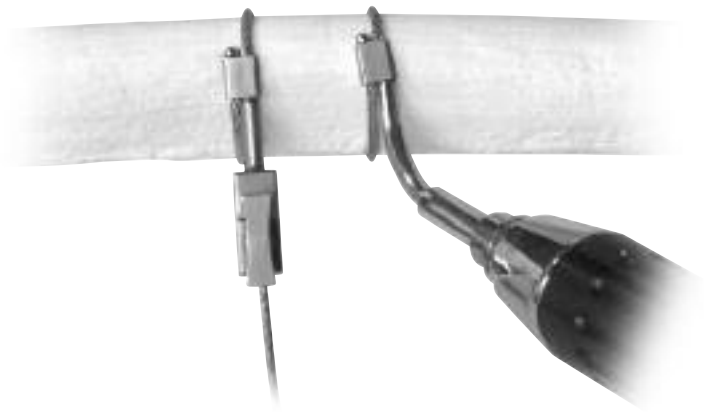


Figure 8



Retensioning with Tension Retaining Device Already Applied

In order to achieve satisfactory retensioning, the following steps must be taken:

3e Follow instructions in Step 3c.

3f Release the tensioned cable in the Tension Retaining Device by turning the winged screw counterclockwise. Once released, the cable is now ready to be tensioned.

3g Follow instructions in Step 3d.

4 Before placing the Crimp Tool on the sleeve, be sure the ratchet mechanism is disengaged. If it is not, squeeze the handles slightly and push the release lever to disengage the ratchet and open the handles fully.

Place the Crimp Tool on the sleeve and squeeze the handles (**Figure 9**). The ratchet mechanism will engage as crimping starts. The ratchet will hold the tool in place if it is necessary to reposition the hands.

Squeeze the handles until the ratchet mechanism disengages. At that point, crimping is complete.

Remove the Single-Sided Tensioner or Tension Retaining Device (whichever is applicable) by turning the knob or winged screw counterclockwise until it releases.

5 Use the Dall-Miles Cable Cutter to cut the free ends of the cable.

The free end of the cable is passed through the Cutter tip, introducing it on the side with the laser mark that reads: "CUT THIS SIDE."

While applying longitudinal tension on the cable, advance the Cutter tip over the cable and push it as flush against the Sleeve as possible (**Figure 10**). This is important in order to leave as short a tag as possible. Pull the Cutter handle to cut the cable.

Do not use an ordinary wire cutter because a long tag may be left and may cause soft tissue irritation.

Figure 9

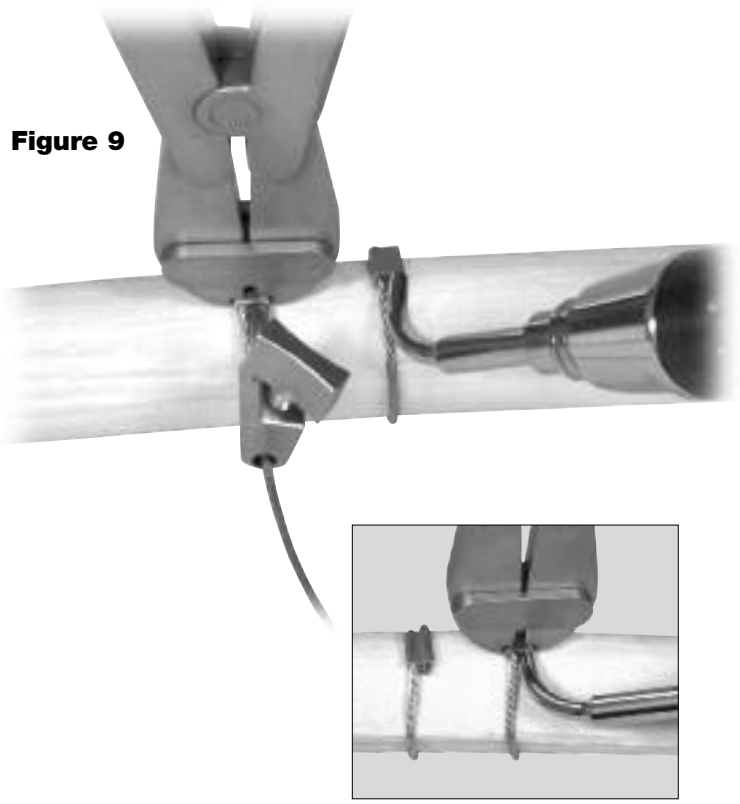
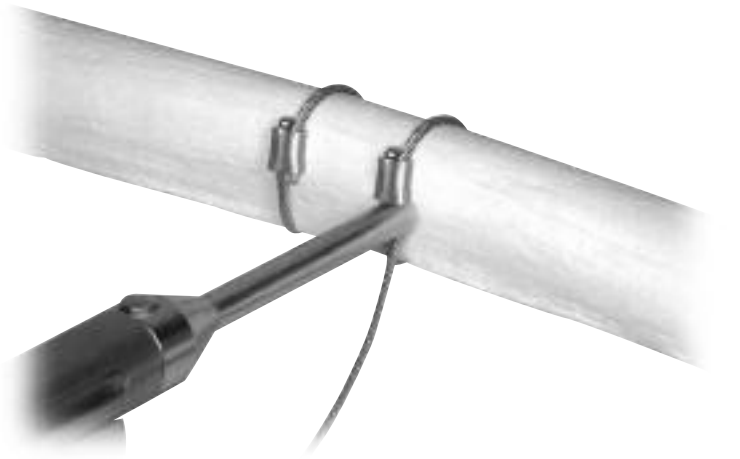


Figure 10



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*U.S. Patent No.: 6,045,909.

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Literature Number: **LSP63**
MS/GS 1/10