

# Bio-Tenodesis™ Screw System

Brochure

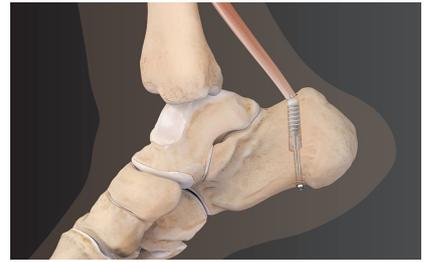


Arthrex® 

## Foot and Ankle

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Achilles, lateral stabilizations and FDL, FHL tendon transfers



## Hand and Wrist

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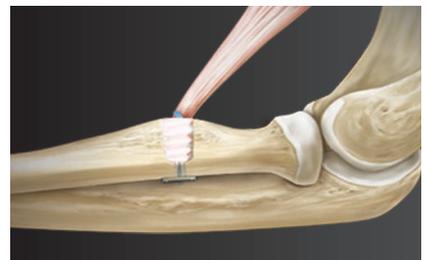
Ligament reconstruction tendon interposition (LRTI), scapholunate ligament reconstruction, and collateral ligament reconstruction



## Elbow

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UCL and distal biceps tendon repair

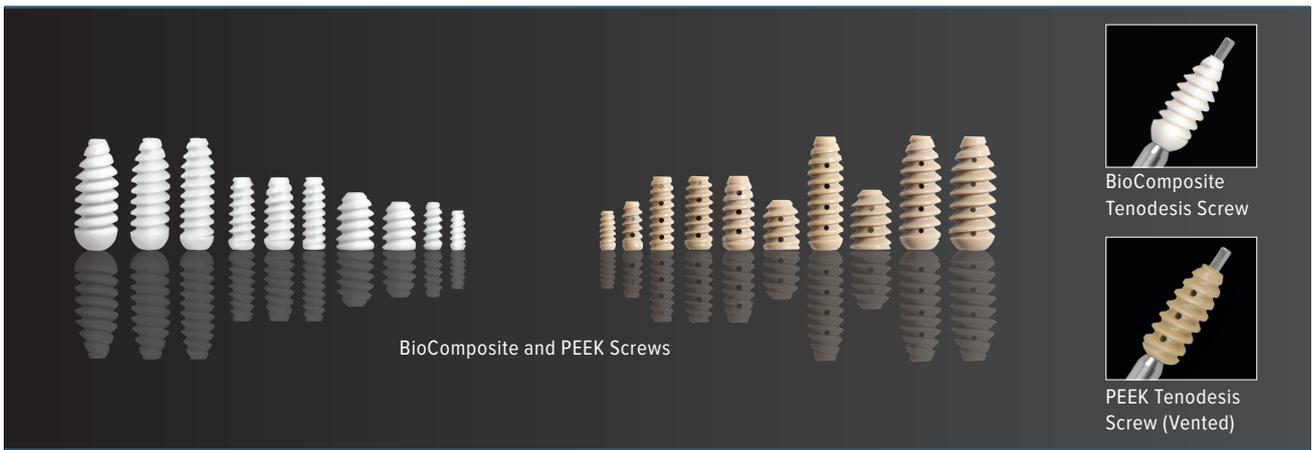


## Shoulder

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Proximal biceps tendon repair and rotator cuff repair





BioComposite and PEEK Screws



BioComposite Tenodesis Screw



PEEK Tenodesis Screw (Vented)

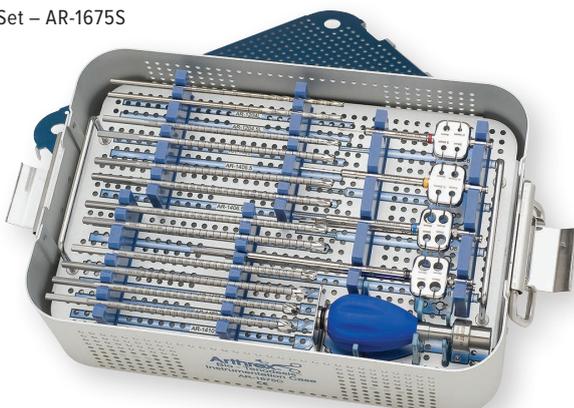
The Bio-Tenodesis™ screw system eliminates transosseous tunnels in tendon repairs and ligament reconstructions. Tenodesis screws may be used in conjunction with #2 or 2-0 FiberWire® suture to facilitate intraoperative tissue-tensioning and fixation in a predrilled socket. The predrilled socket minimizes incision length, dissection, and overall morbidity. BioComposite and vented PEEK tenodesis screw insertion provides superior and immediate fixation for foot and ankle indications such as Achilles repair, FDL, FHL tendon transfers, and lateral ligament stabilization.<sup>1,2,3</sup>

The system can also be used for applications in the hand and elbow (UCL, LRTI, SL reconstruction, distal biceps), shoulder (rotator cuff repair, proximal biceps), as well as collateral ligament repair/reconstruction. This construct allows for direct tendon-to-bone healing, without hardware prominence.

**References**

1. Benca E, Willegger M, Wenzel F, et al. Biomechanical evaluation of two methods of fixation of a flexor hallucis longus tendon graft. *Bone Joint J.* 2018;100-B(9):1175-1181. doi:10.1302/0301-620X.100B9.BJJ-2018-0100.R2.
2. Schuberth JK, Smith PR, Jennings MM. An anatomic and autologous lateral ankle stabilization. *J Foot Ankle Surg.* 2009;48(6):700-705. doi:10.1053/j.jfas.2009.07.006. Epub 2009 Sep 10.
3. Jeys LM, Harris NJ. Ankle stabilization with hamstring autograft: a new technique using interference screws. *Foot Ankle Int.* 2003;24(9):677-679. doi:10.1177/107110070302400904.

Bio-Tenodesis  
Master Instrument  
Set – AR-1675S



AR-1570DB Driver With Tear Drop Handle w/ Suture – AR-2201BT

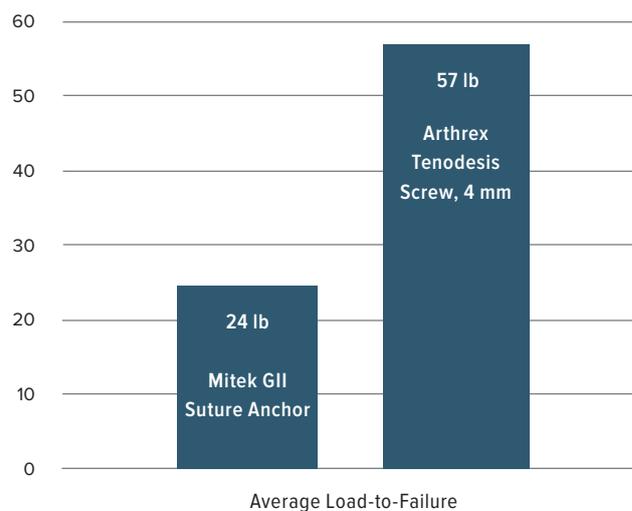
## Strongest Fixation Strength

The chart on the right demonstrates the average load-to-failure force of the tenodesis screw compared to the Mitek GII® suture anchor. The testing was performed to determine the mechanical strength of fixation in the biceps tendon using a tenodesis screw in a bone socket. The Bio-Tenodesis™ screw was inserted into a socket in the proximal humerus in cadaveric bone. The results indicate that tenodesis screws behave in a mechanically superior fashion when compared to Mitek GII suture anchors (57 lb vs 24 lb).<sup>1</sup>

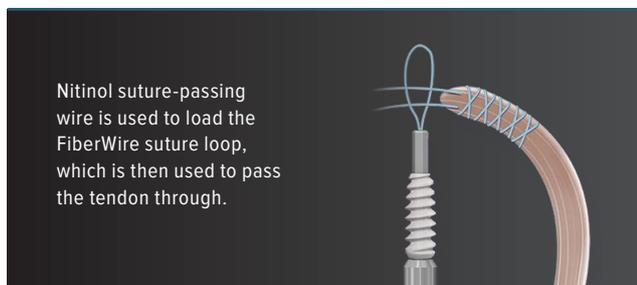
\*GII is a registered trademark of DePuy Synthes.

### Reference

1. Arthrex, Inc. APT 03. Naples, FL; 2002.



## Creation of the FiberWire® Suture Loop



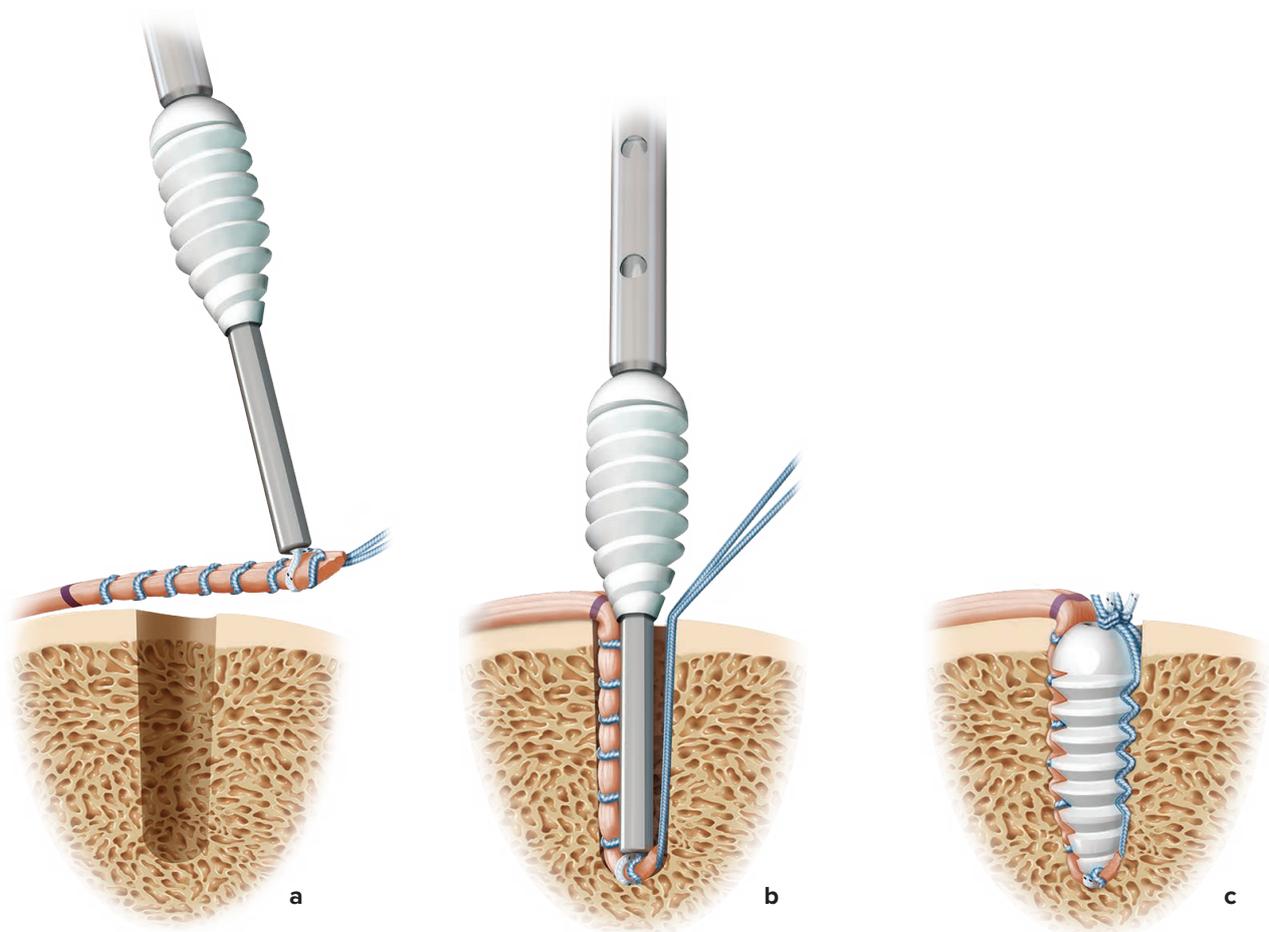
The surgeon must create a FiberWire suture loop at the tip of the driver to snare the tendon so it can be placed in the bone tunnel. The FiberWire suture loop is created by a disposable Nitinol suture-passing wire and #2 FiberWire suture found in the Tenodesis Disposables Kit. Snare the tip of the whipstitched tendon 2 mm from the end of the graft. Place tension on the sutures exiting the back of the tear drop handle and wrap them once around the O-ring inside the cleat as shown. It is important to maintain maximum tension between the driver tip and the tendon during initial placement of the tendon in the tunnel.



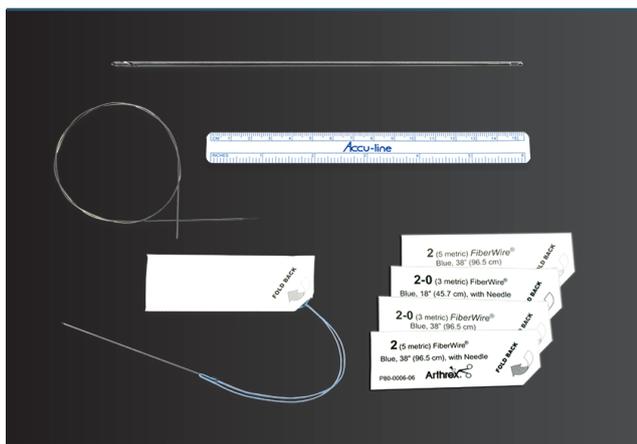
## Surgical Technique: Tendon or Graft Fixation

- Determine the anatomic attachment site and use a power drill to insert a 2.4 mm guide pin.
- Create a bone socket to a depth 2 mm longer than the screw used. An optional tap may be used if extra hard bone is encountered.
- Tension the tendon graft anatomically over the socket and draw a line on the tendon at the inner socket rim to mark the appropriate tensioned graft length.
- Pass the FiberLoop® suture over the free end of the graft. Pass the needle through the graft at the proximal starting point. After passing and tensioning the first stitch, spread the suture strands on either side of the graft and drop the graft between the strands. Pass the needle through the graft distal to the first pass, towards the end of the graft. Repeat this process until the desired stitching length is obtained.
- Insert the appropriately sized screw onto the tenodesis driver and create a FiberWire® suture loop around the tendon the length of the screw, away from the mark (a).
- Insert the extended tenodesis driver tip into the socket with the graft end until the mark lies over the socket rim (b).
- Insert the screw, maintaining tension on the graft. After full insertion of the screw, remove the driver and tie the graft-passing sutures exiting the screw/socket interface with the FiberWire suture loop exiting the screw cannulation over the screw rim as additional fixation (c).

**Note: Please use the reference chart to help select the appropriate implant, driver, and diameter for the reamed socket.**



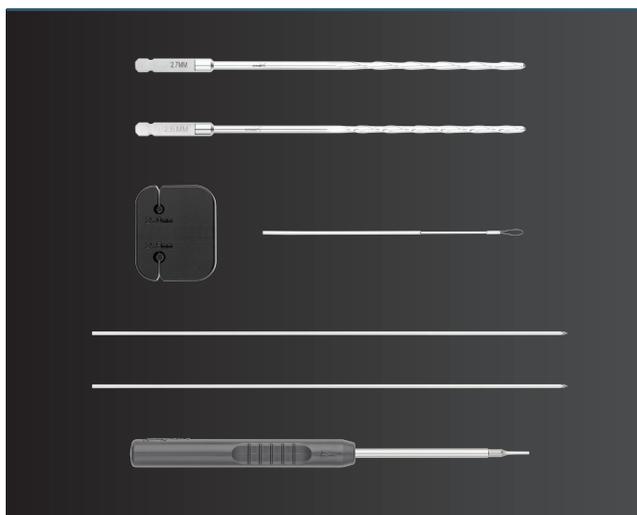
## Disposable Kits



The tenodesis screw product line includes a disposables kit (AR-1676DS), to be used in conjunction with the master set, AR-1675S.

### Bio-Tenodesis™ Disposables Kit (a)

Product Description	Item Number
Guide Pin w/ Eyelet, short, 2.4 mm	<b>AR-1676DS</b>
Suture Passing Wire	
#2 FiberWire® Suture, blue	
#2 FiberWire Suture w/ Needle, blue	
2-0 FiberWire Suture, blue	
2-0 FiberWire Suture, w/ Needle, blue	
FiberLoop Suture w/ Straight Needle, blue	
Ruler, 6 in	



### Bio-Tenodesis Disposables Kit for 2.5 mm × 6 mm Screw

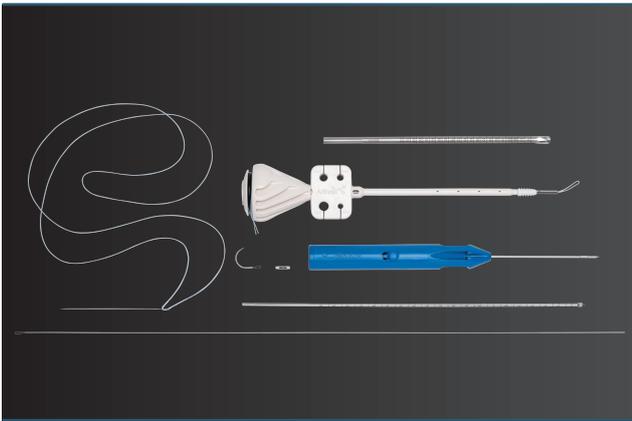
Product Description	Item Number
Guidewire w/ Trocar Tip, 0.049 in, qty. 2	<b>AR-1525DS</b>
Tendon Sizer, 2.0 mm/2.5 mm	
Suture Passing Wire, 1.1 mm	
Drill Bit, cannulated, AO, 2.5 mm	
Drill Bit, cannulated, AO, 2.7 mm	

### Bio-Tenodesis Disposables Kit for 3 mm × 8 mm Screw

Product Description	Item Number
Guidewire, 0.043 in	<b>AR-1530DS</b>
Suture Passing Wire, 7.5 in long (1.1 mm)	
Suture Passing Wire, 8 in long (74 mm)	
Drill Bit, AO, cannulated, 2.5 mm	
Drill Bit, AO, cannulated, 3.0 mm	
Drill Bit, AO, cannulated, 3.5 mm	
2-0 FiberWire Suture w/ Needle, blue, 18 in	

AR-1530DS is a complete kit with disposables and instrumentation.

## FDL/FHL Implant System



The FDL/FHL Implant System delivers cortical button fixation and the tension-slide technique for tendon transfers, allowing the surgeon to tension the tendons while minimizing dissection and tendon harvest. The combination of the cortical button fixation coupled with an interference screw aperture fixation creates a reproducible, rigid, strong, and anatomic construct.

### Disposables Kit

Product Description	Item Number
Tenodesis Graft Sizing Kit Tendon Sizer #0 FiberLoop® SutureTape w/ Needle, blue SutureTape, 1.3 mm	AR-1676ST

### FDL Implant System, 4.75 mm

Product Description	Item Number
Oblong Button, 2.6 mm × 8 mm BioComposite Tenodesis Screw on Driver w/ #2 FiberWire® Suture, 4.75 mm × 15 mm Spade Tip Drill Pin, 3.2 mm Headed Reamer, cannulated, 5 mm #2 FiberLoop Suture w/ Needle, blue Free Needle Suture Passing Wire Button Inserter	AR-1547BC-CP

### FDL Implant System, 5.5 mm

Product Description	Item Number
Oblong Button, 2.6 mm × 8 mm BioComposite Tenodesis Screw on Driver w/ #2 FiberWire suture, 5.5 mm × 15 mm Spade Tip Drill Pin, 3.2 mm Headed Reamer, cannulated, 5.5 mm #2 FiberLoop Suture w/ Needle, blue Free Needle Suture Passing Wire Button Inserter	AR-1555BC-CP

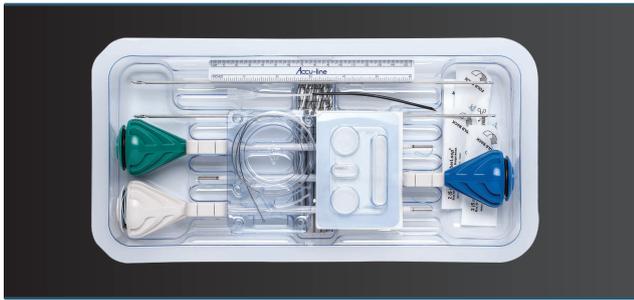
### FHL Implant System, 6.25 mm

Product Description	Item Number
Oblong Button, 2.6 mm × 12 mm BioComposite Tenodesis Screw on Driver w/ #2 FiberWire Suture, 6.25 mm × 15 mm Spade Tip Drill Pin, 3.2 mm Headed Reamer, cannulated, 6.5 mm #2 FiberLoop Suture w/ Needle, blue Free Needle Suture Passing Wire Button Inserter	AR-1562BC-CP

### FHL Implant System, 7 mm

Product Description	Item Number
Oblong Button, 2.6 mm × 12 mm BioComposite Tenodesis Screw on Driver w/ #2 FiberWire suture, 7 mm × 23 mm Spade Tip Drill Pin, 3.2 mm Headed Reamer, cannulated, 7 mm #2 FiberLoop Suture w/ Needle, blue Free Needle Suture Passing Wire Button Inserter	AR-1570BC-CP

## Lateral Ankle Reconstruction Implant System



The Lateral Ankle Reconstruction Implant System delivers an interference screw fixation that surgeons have counted on for 11 years. The implant kit includes BioComposite tenodesis screws, instruments, and accessories, reducing OR inventory and sterilization costs. By using a free graft to recreate the ATFL and CFL ligaments, surgeons are able to achieve a reproducible, rigid, and anatomic reconstruction necessary for patients with ligamentous laxity or surgical revisions.

### Lateral Ankle Reconstruction Implant System

Product Description	Item Number
BioComposite Tenodesis Screw on Disposable Tenodesis Driver: 4.75 mm × 15 mm (fibula) 5.5 mm × 15 mm (talus) 6.25 mm × 15 mm (calcaneus) #2 FiberWire® suture, blue, 38 in #2 FiberLoop® sutures w/ Straight Needle, blue, qty. 3 QuickPass Tendon Shuttle® Instrument, small Ruler, 6 in Suture Passing Wire Guide Pin, short, 2.4 mm, qty. 2 Drills, cannulated, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm	<b>AR-1675BC-CP</b>

### Literature

Product Description	Item Number
Five Comprehensive Solutions for Tendon and Ligament Reconstruction Using the Tenodesis Screw System	<b>LB1-0005-EN</b>
VersaGRAFT® Presutured Tendon for Lateral Ankle Reconstruction Surgical Technique Guide	<b>LT1-0808-EN</b>

## CMC Ligament Reconstruction Implant System



The CMC Ligament Reconstruction Implant System provides a convenient all-in-one solution for ligament reconstruction of the base of the thumb. By combining our state-of-the-art Tenodesis Screw System with a convenient disposables kit, the CMC Ligament Reconstruction Implant System may enable a faster, more convenient repair.

### CMC Ligament Reconstruction Implant System

Product Description	Item Number
Guide Pin Drill Bit, cannulated, 4 mm QuickPass Tendon Shuttle Tendon Passer Tenodesis Screw, 4 mm × 10 mm Tenodesis Driver, 4 mm × 10 mm Suture Passing Wire, 1.1 mm Ruler, 6 in	<b>AR-1677BC-CP</b>

### Literature

Product Description	Item Number
LRTI for Thumb CMC Arthritis Surgical Technique	<b>LT1-0410-EN</b>

### Multimedia

Product Description	Item Number
LRTI Procedure Using the Arthrex Bio-Tenodesis™ Screw for Thumb Basilar Arthritis, by Dennis Sagini, MD, video	<b>VID1-0405-EN</b>
LRTI Procedure Using the Arthrex Tenodesis Screw for the Thumb Basilar Arthritis, surgical technique video	<b>VID1-0410-EN</b>

## Deltoid Reconstruction Implant System



The Deltoid Ligament Reconstruction Implant System provides a turnkey repair technique to treat chronic deltoid ligament pathology. By using a free tendon graft to recreate both the superficial and deep bands of the deltoid ligament, surgeons are able to achieve a reproducible, rigid, anatomic reconstruction for patients presenting with chronic medial instability.

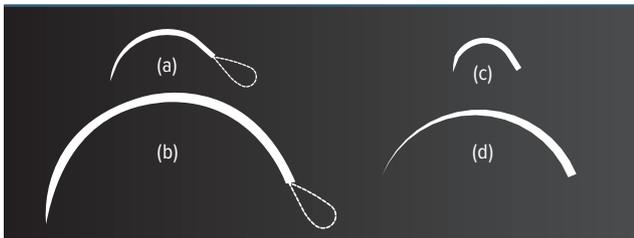
### Deltoid Ligament Reconstruction Kit

Product Description	Item Number
TightRope RT Implant	<b>AR-8918CP</b>
BioComposite Tenodesis Screw on Disposables Tenodesis Driver:	
4.75 mm × 15 mm (green)	
5.5 mm × 15 mm (blue)	
6.25 mm × 15 mm (white)	
Spade Tip Pin, 4 mm	
Guide Pins w/ Eyelet, 2.4 mm, qty. 3	
#2 FiberLoop® Suture on Straight Needle, blue, qty. 2	
#2 FiberWire® Suture w/ Single Curved Needle, blue, qty. 2	
#2 FiberTape® Suture, blue, qty. 2	
Cortical Button on Inserter	
Free Needle, curved	
Drill Bits, cannulated, 4.0 mm, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm	
Ruler, 6 in	

### Literature

Product Description	Item Number
Deltoid Ligament Reconstruction Surgical Technique Guide	<b>LT1-00002-EN</b>
The Arthrex Deltoid Reconstruction Implant System Product and Technique Highlights	<b>LS1-0418-EN</b>

## FiberLoop Suture



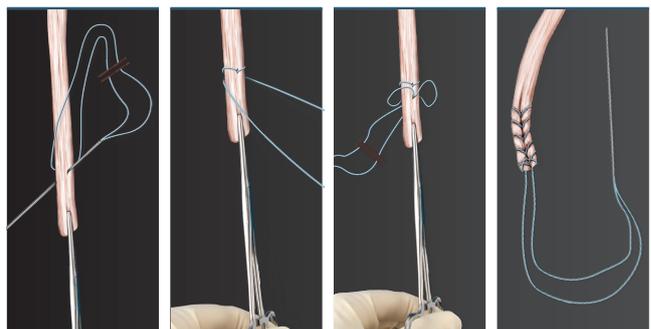
FiberLoop suture is an excellent suture option for multi-strand tendon repairs. These small-diameter looped FiberWire suture products allow for strong multi-strand flexor and extensor tendon repairs, while reducing tendon damage from multiple needle passes. FiberLoop suture is available with multiple needle options to prevent cutting suture while stitching.

Product Description	Item Number
2-0 FiberLoop Suture w/ Tapered Needle, 14 in blue, 18 mm $\frac{3}{8}$ circle	<b>AR-7232-05</b>
4-0 FiberLoop Suture w/ Tapered Needle, 6 in, white, 12.7 mm $\frac{1}{2}$ circle (c)	<b>AR-7249-12</b>
4-0 FiberLoop Suture w/ Tapered Needle, 10 in, white, 12.7 mm $\frac{1}{2}$ circle	<b>AR-7249-20</b>
4-0 FiberLoop Suture w/ Tapered Needle, 6 in, blue, 17.9 mm $\frac{3}{8}$ circle (a)	<b>AR-7229-12</b>
4-0 FiberLoop Suture w/ Tapered Needle, 10 in, blue, 17.9 mm $\frac{3}{8}$ circle	<b>AR-7229-20</b>

### Literature

Product Description	Item Number
SpeedWhip™ Technique With FiberLoop and TigerLoop	<b>LT0135</b>

Product Description	Item Number
#2 FiberLoop Suture w/ Straight Needle, 20 in blue, 76 mm needle w/ 7 mm loop	<b>AR-7234</b>
0 FiberLoop Suture w/ Straight Needle, 13 in (blue), 76 mm needle w/ 7 mm loop	<b>AR-7253</b>
0 TigerLoop® Suture w/ Straight Needle, 13 in (white/black), 76 mm needle w/ 7 mm loop	<b>AR-7253T</b>
2-0 FiberLoop Suture w/ Diamond Point Needle, 30 in, blue, 48 mm $\frac{1}{2}$ circle (b)	<b>AR-7232-01</b>
2-0 FiberLoop Suture w/ Diamond Point Needle, 24 in, blue, 26.2 mm $\frac{3}{8}$ circle (d)	<b>AR-7232-02</b>
2-0 FiberLoop Suture w/ Diamond Point Straight Needle, 13 in, blue, 64.8 mm	<b>AR-7232-03</b>



SpeedWhip Tendon Preparation Technique With FiberLoop Suture

## Reference Chart

- Implant diameter should be as close to the graft diameter as possible by measuring 0 mm to 25 mm from the tip of the tendon.
- Drill diameter should be 0.5 mm to 1 mm larger than the tendon diameter, assuming the screw selected is within 1 mm of the tendon diameter
- Drill depth should be 2 mm deeper than the length of the screw selected
- Drill selection is based on the diameter size of the tendon and quality of bone

Graft Diameter	Implant Diameter	Implant Length	Screw Part Number	Drill Depth	Drill Diameter	Suture Loop	Driver Part Number
2.0 mm-2.5 mm	2.5 mm	6 mm	AR-1525PS	Bicortical	2.5 mm or 2.7 mm	N/A	AR-1525DS
2.5 mm-3.5 mm	3 mm	8 mm	AR-1530BC/PS	Bicortical	2.5 mm, 3 mm, or 3.5 mm	N/A	AR-1530DS
3 mm-4 mm	4 mm	10 mm	AR-1540BC/PS	12 mm	4 mm or 4.5 mm	2-0	AR-1540DB
3.5 mm-4.5 mm	4.75 mm	15 mm	AR-1547BC/PS	17 mm	4.5 mm or 5.5 mm	#2	AR-1350D
4.5 mm-5.5 mm	5.5 mm	15 mm	AR-1555BC/PS	17 mm	5.5 mm or 6.5 mm	#2	AR-1350D
4.5 mm-5.5 mm	5.5 mm	8 mm	AR-1655PS	17 mm	5.5 mm or 6.5 mm	#2	AR-1350D
4.5 mm-5.5 mm	5.5 mm	10 mm	AR-1655PS-10	17 mm	5.5 mm or 6.5 mm	#2	AR-1350D
4.5 mm-5.5 mm	5.5 mm	12 mm	AR-1655PS-12	17 mm	5.5 mm or 6.5 mm	#2	AR-1350D
5 mm-6 mm	6.25 mm	15 mm	AR-1562BC/PS	17 mm	6 mm or 7 mm	#2	AR-1350D
4.5 mm-7 mm	7 mm	10 mm	AR-1670BC/PS	12 mm	7 mm or 8 mm	#2	AR-1670DB
4.5 mm-7 mm	7 mm	23 mm	AR-1570BC/PS	25 mm	7 mm or 8 mm	#2	AR-1570DB
5.5 mm-8 mm	8 mm	12 mm	AR-1680BC/PS	14 mm	8 mm or 9 mm	#2	AR-1670DB
5.5 mm-8 mm	8 mm	23 mm	AR-1580BC/PS	25 mm	8 mm or 9 mm	#2	AR-1570DB
7 mm-9 mm	9 mm	23 mm	AR-1590BC/PS	25 mm	8 mm or 10 mm	#2	AR-1570DB

BC-BioComposite  
PS-PEEK

## Ordering Information

### Bio-Tenodesis™ Screw Instrumentation Set (AR-1675S)

Product Description	Item Number
Drill Bit, 4 mm, cannulated	AR-1204L
Drill Bit, 4.5 mm, cannulated	AR-1204.5L
Headed Reamers, cannulated, 5 mm-10 mm Sizes: 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 10 mm	AR-1405 – 1410
Tear Drop Handle w/ Suture Cleat	AR-2001BT
Driver for 10 mm Tenodesis Screws	AR-1540DB
Driver for 10 mm and 12 mm Tenodesis Screws	AR-1670DB
Driver for 15 mm Tenodesis Screws	AR-1350D
Driver for 23 mm Tenodesis Screws	AR-1570DB
Bio-Tenodesis Screw Instruments Case	AR-1675C
<b>Implants</b>	
PEEK Tenodesis Screw w/ Handled Insert, 2.5 mm × 6 mm	AR-1525PS
BioComposite Tenodesis Screw w/ Handled Insert, 3 mm × 8 mm	AR-1530BC
BioComposite Tenodesis Screw, 4 mm × 10 mm	AR-1540BC
Disposable Tenodesis Driver w/ 4.0 mm BioComposite Screw and #2 FiberWire® Suture	AR-1540CDS
BioComposite Tenodesis Screw, 4.75 mm × 15 mm	AR-1547BC
Disposable Tenodesis Driver w/ 4.75 mm BioComposite Screw and #2 FiberWire Suture	AR-1547CDS
BioComposite Tenodesis Screw, 5.5 mm × 15 mm	AR-1555BC
Disposable Tenodesis Driver w/ 5.5 mm BioComposite Screw and #2 FiberWire Suture	AR-1555CDS
BioComposite Tenodesis Screw, 6.25 mm × 15 mm	AR-1562BC
Disposable Tenodesis Driver w/ 6.25 mm BioComposite and #2 FiberWire Suture	AR-1562CDS
BioComposite Tenodesis Screw, 7 mm × 10 mm	AR-1670BC
BioComposite Tenodesis Screw, 7 mm × 23 mm	AR-1570BC
BioComposite Tenodesis Screw, 8 mm × 12 mm	AR-1680BC
BioComposite Tenodesis Screw, 8 mm × 23 mm	AR-1580BC
BioComposite Tenodesis Screw, 9 mm × 23 mm	AR-1590BC
PEEK Tenodesis Screw, 2.5 mm × 6 mm	AR-1525PS
PEEK Tenodesis Screw, w/ handled inserter, 3 mm × 8 mm	AR-1530PS
PEEK Tenodesis Screw, 4 mm × 10 mm	AR-1540PS
PEEK Tenodesis Screw, 4.75 mm × 15 mm	AR-1547PS
PEEK Tenodesis Screw, 5.5 mm × 8 mm	AR-1655PS
PEEK Tenodesis Screw, 5.5 mm × 15 mm	AR-1555PS
PEEK Tenodesis Screw, 6.25 mm × 15 mm	AR-1562PS
PEEK Tenodesis Screw, 7 mm × 10 mm	AR-1670PS
PEEK Tenodesis Screw, 7 mm × 23 mm	AR-1570PS
PEEK Tenodesis Screw, 8 mm × 12 mm	AR-1680PS
PEEK Tenodesis Screw, 8 mm × 23 mm	AR-1580PS
PEEK Tenodesis Screw, 9 mm × 23 mm	AR-1590PS

Product Description	Item Number
<b>Disposables</b>	
Tenodesis Disposables Kit for 2.5 mm × 6 mm Screw	AR-1525DS
Tenodesis Disposables Kit for 3 mm × 8 mm Screw	AR-1530DS
Tenodesis Disposables Kit	AR-1676DS
<b>Accessories (optional)</b>	
Tenodesis Tap, 4 mm × 10 mm	AR-1540T
Tenodesis Tap, 4.75 mm × 15 mm	AR-1547T
Tenodesis Tap, 5.5 mm × 15 mm	AR-1555T
Tenodesis Tap, 6.25 mm × 15 mm	AR-1562T
Tenodesis Tap, 7 mm × 10 mm	AR-1670T
Tenodesis Tap, 7 mm × 23 mm	AR-1570T
Tenodesis Tape, 8 mm × 12 mm	AR-1680T
6.7 mm Low Profile Screw System Tenodesis Module (for calcaneal osteotomies)	AR-8967S

### Literature

Product Description	Item Number
Five Comprehensive Solutions for Tendon and Ligament Reconstruction Using the Bio-Tenodesis Screw System Brochure	LB1-0005-EN

### Multimedia

Product Description	Item Number
Flexor Digitorum Longus (FDL) Tendon Transfer, animation	AN1-00032-EN
Flexor Hallicis Longus (FHL) Tendon Transfer, animation	AN1-00034-EN
Lateral Ankle Reconstruction, animation	AN1-00033-EN
Deltoid Ligament Reconstruction, animation	AN1-00134-EN
Anterior Tibialis Tendon Repair Using Cortical Button and Tenodesis Screw, Presented by Thomas G. Harris, MD, video	VID1-00806-EN
Extensor Digitorum Brevis Tendon Transfer Utilizing the Arthrex 3 mm × 8 mm Tenodesis Screw, Presented by Dane K. Wukich, MD, video	VID1-00220-EN
Extensor Digitorum Brevis (EDB) Tendon Transfer With <i>InternalBrace</i> ™ Augmentation Utilizing the Arthrex 3 mm × 8 mm Tenodesis Screw and LabralTape™, Presented by Dane K. Wukich, MD, video	VID1-00589-EN



This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes.

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