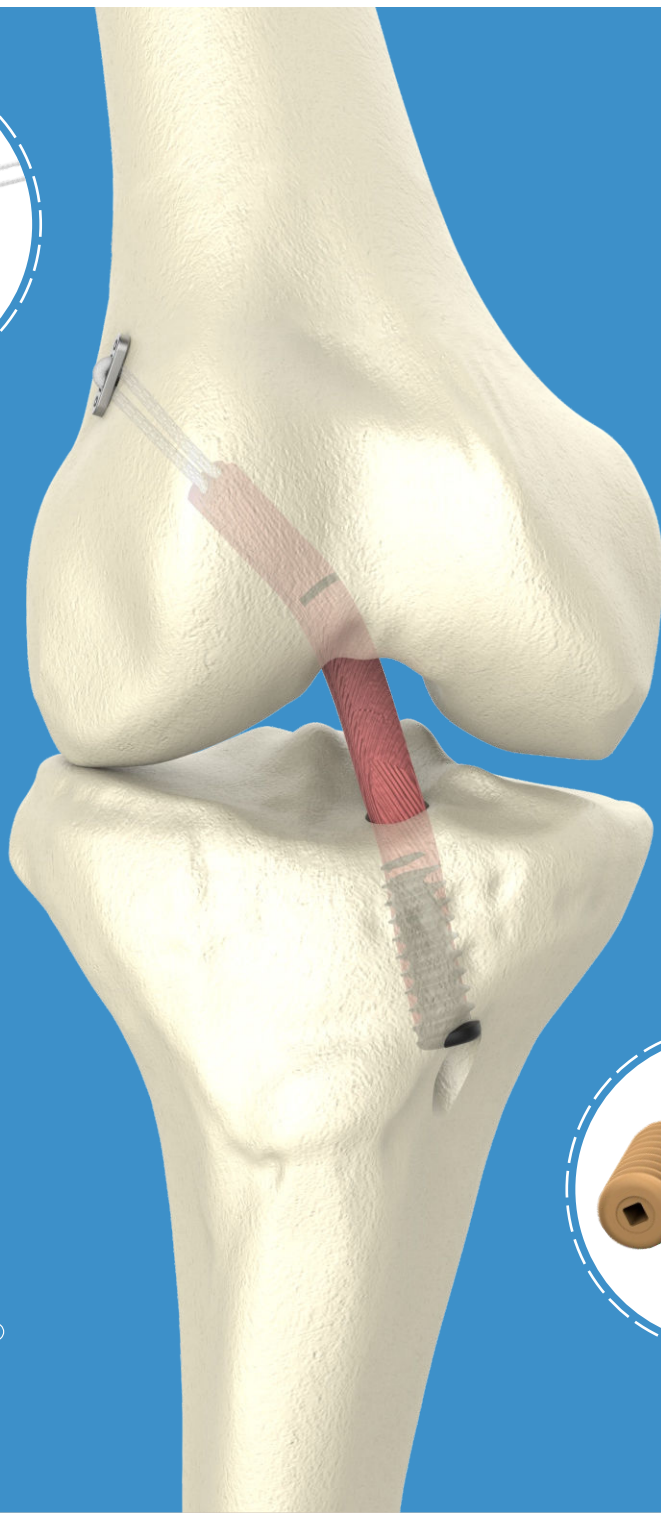


Surgical Technique

ACL Reconstruction using AUXILOCK[®] GFS Mini and
AUXILOCK[®] Interference Screw



About us

Auxein Medical is an integrated, research based, orthopaedic Implants & instruments manufacturing company, producing a wide range of quality, affordable generic implants, trusted by healthcare professionals and patients across geographies. It is the Company's constant endeavor to provide a wide basket of generic and our innovator products that exceed the highest expectations of customers in term of quality and safety. The company has world-class manufacturing unit established in india and serves customers in over 80 countries worldwide.

Achievements

- US FDA 510K Cleared (Arthroscopy | Spine | Nailing | Locking Plates | Screws)
- EC Certificate - Class IIa & IIb
- ISO 13485:2016
- ISO 9001:2015
- India FDA Approved
- India MDR 2017



80+
Countries
Covered



150+
Distributors
Network



1200+
Implants
Range



20M+
Patients
Treated



Disclaimer

All content herein is protected by copyright, trademarks and other intellectual property rights, as applicable, owned by or licensed to Auxein Medical or its affiliates unless otherwise indicated, and must not be redistributed, duplicated or disclosed, in whole or in part, without the express written consent of Auxein Medical.

This material is intended for health care professionals. Distribution to any other recipient is prohibited.

For indications, contraindications, warnings, precautions, potential adverse effects and patient counselling information, see the package insert or contact your local representative; visit www.auxein.com for additional product information.

Auxein Medical does not practice medicine. This technique was developed in conjunction with health care professionals. This document is intended for surgeons and is not intended for laypersons. Animations and virtual reality are provided as a visual guide based on surgical techniques; a written copy of the surgical technique is available at www.auxein.com or from your local representative. Each surgeon should exercise his or her own independent judgment in the diagnosis and treatment of an individual patient, and this information does not purport to replace the comprehensive training surgeons have received. As with all surgical procedures, the technique used in each case will depend on the surgeon's medical judgment as the best treatment for each patient. Results will vary based on health, weight, activity and other variables. Not all patients are candidates for this product and/or procedure.

©2022 Auxein Medical.

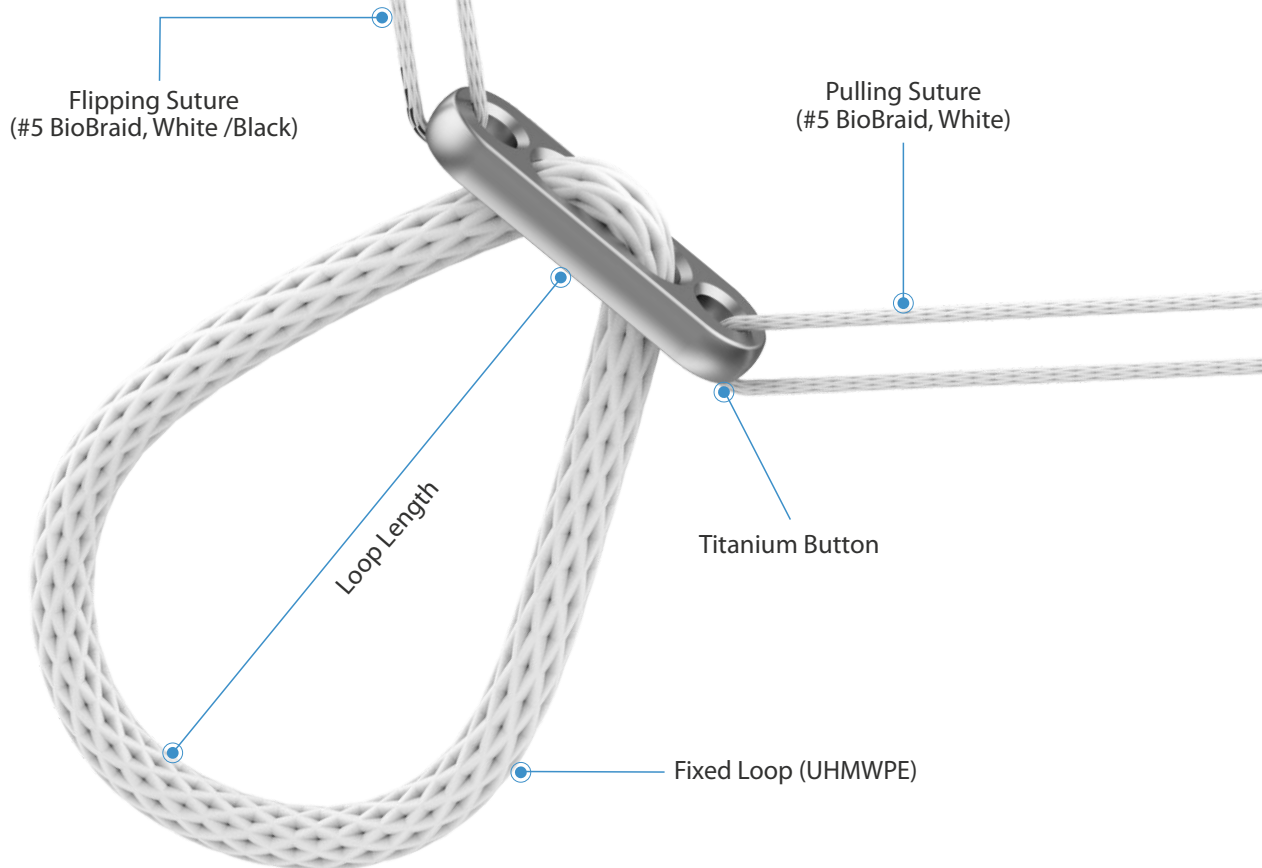


Organised by:  **Auxein**

Contents

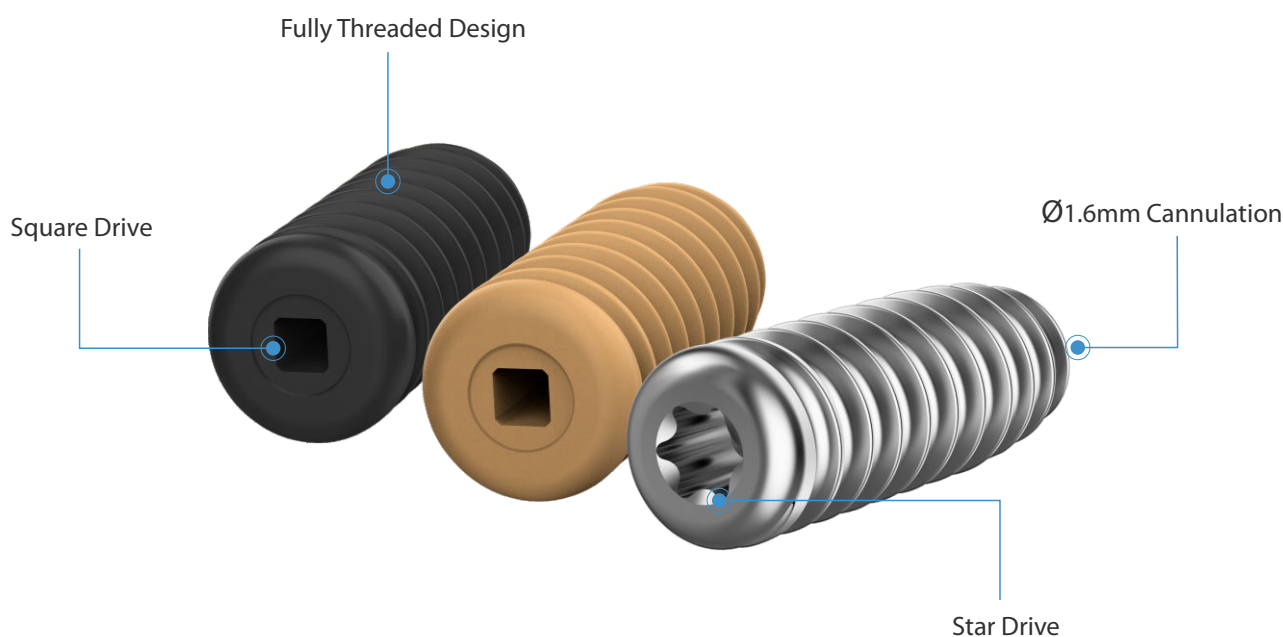
Product Overview	1-2
Indications	3
Surgical Technique	4-14
Ordering Information	15-16
Recommended Instrumentation	17-25

PRODUCT OVERVIEW



GFS Mini is a fixed loop with an oblong shaped button used for Graft Fixations in ACL/PCL Reconstruction. Being a continuous loop without any joint, GFS Mini provides a stronger fixation while eliminating the need for knot tying. GFS Mini is available in various pre-measured loop sizes of 12, 15, 20, 25, 30, 35, 40, 45, 50 and 55mm. The pre-loaded pulling (#5, White) and Flipping (#5, White/Black) braided sutures are available to ensure controlled pulling and flipping of the button in the trans osseous tunnel. A 4.7mm cannulated headed reamer is provided in the instrument set for drilling the tunnel, allowing the GFS Mini button to pass easily into it. The fixed loop is made of UHMWPE (Ultra High Molecular Weight Polyethylene) and the oblong button (L 12mm XW 3.9mm XH 1.5mm) is made of titanium material.

Interference Screw



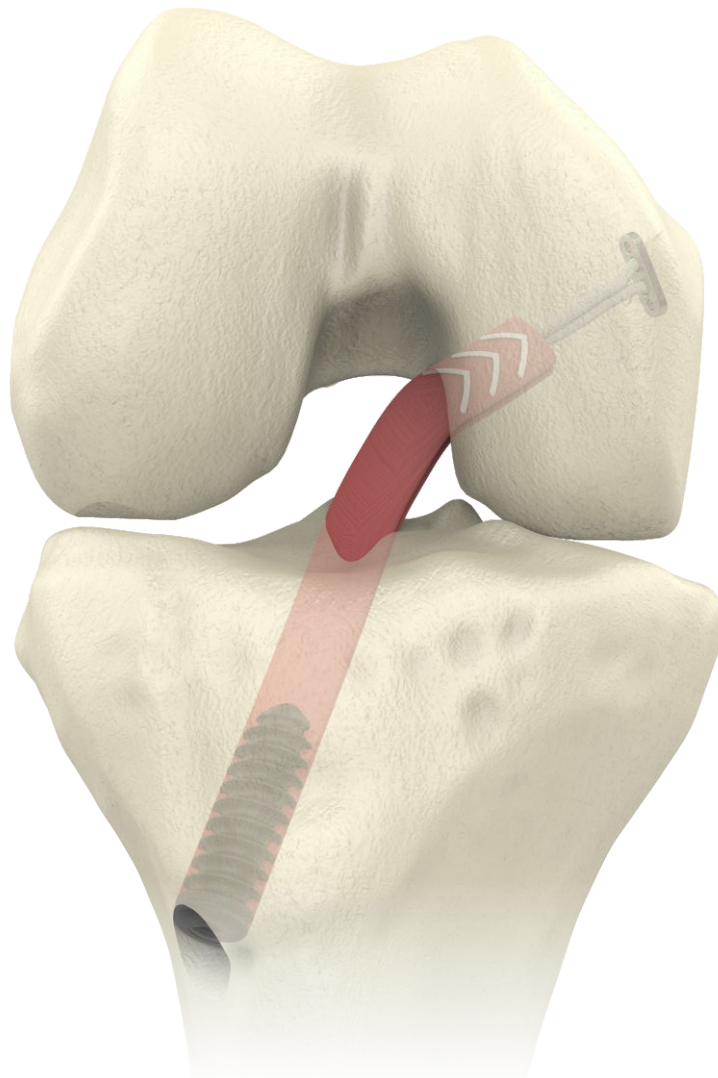
The Interference Screws are available in Titanium, PEEK OPTIMA and PEEK CF. The Interference Screw has a fully threaded design which provides strong mechanical fixation for both bone tendon bone (BTB) and soft tissue grafts. Being a cannulated screw, it is used with a guide wire and a cannulated screw driver. It is available in diameter ranging from 7mm to 12mm. The PEEK OPTIMA and PEEK CF are renowned for their radiolucent properties, less imaging artefact and for being MR safe. Both interference screws offer revision ability of an absorbable screw.

Diameter in mm	Length in mm (Polymer)	Length in mm (Ti)
7	20, 25, 30	20, 25, 30, 35
8, 9	20, 25, 30, 35	20, 25, 30, 35
10, 11, 12	25, 30, 35	25, 30, 35

INDICATION

The AUXILOCK[®] GFS Mini is indicated for use in the fixation of ligaments and tendons in patients requiring ligament or tendon repair.

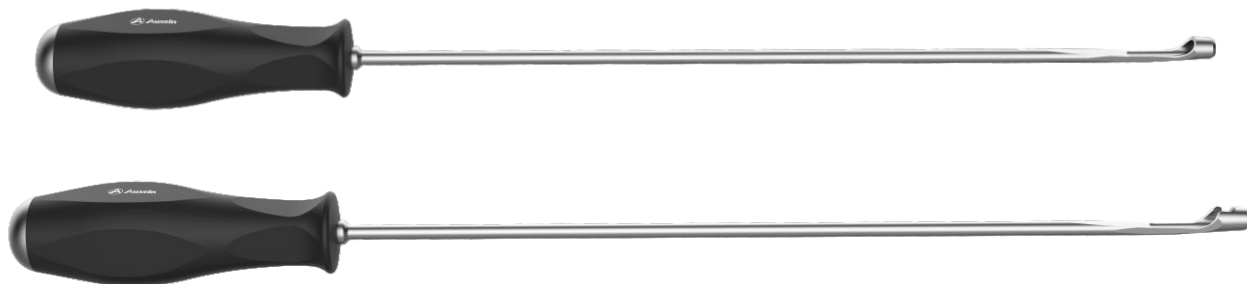
The AUXILOCK[®] Interference Screws are indicated for use in the fixation of ligaments and tendons in patients requiring ligament or tendon repair.



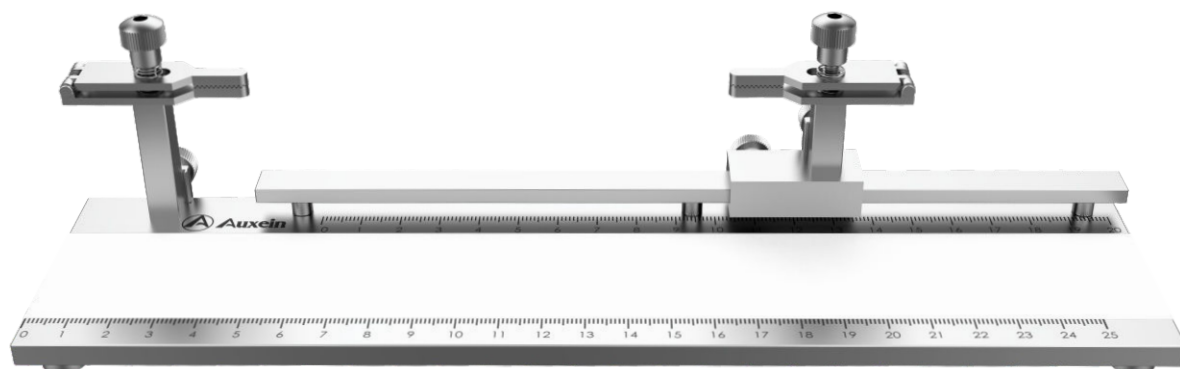
SURGICAL TECHNIQUE

Graft Harvest and Preparation

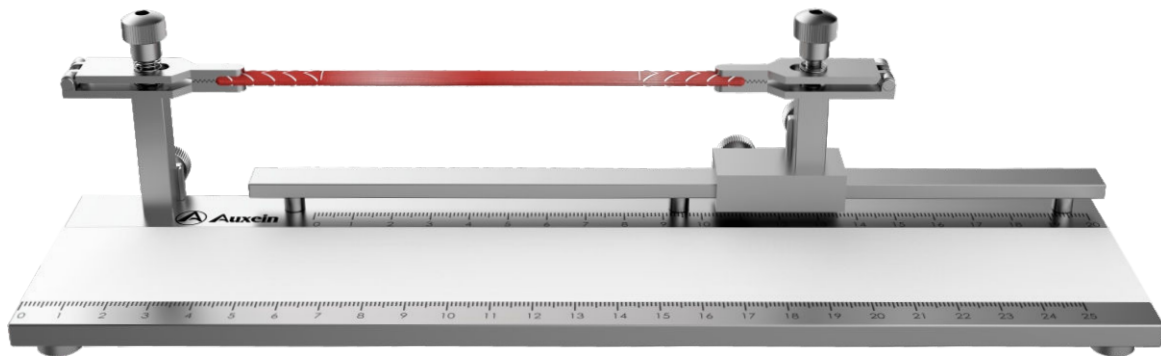
Harvest desired tendons using tendon stripper (Open end/Closed end) (7-014-48, 7-014-49, 7-014-50, 7-014-51, 7-014-52, 7-014-53). Put the tendons on the graft station (7-017-01, 7-017-02, 7-017-03, 7-017-04, 7-017-05, 7-017-06) where residual muscle is removed.



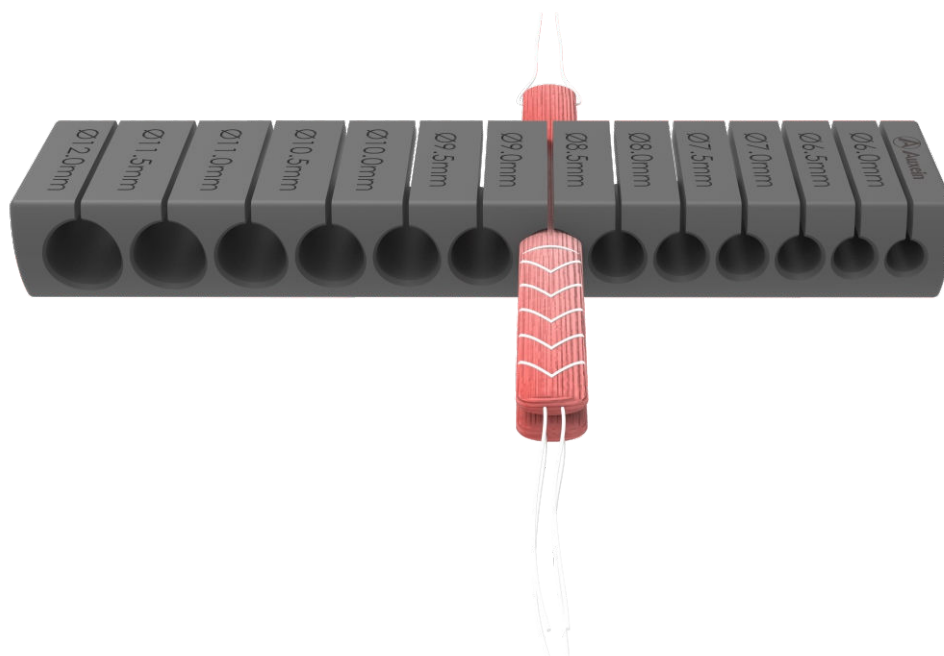
Assemble graft grasper clamps (7-017-03, 7-017-04), sliding base (7-017-02) and the graft station together.



Whip-stitch end of the graft using BioBraid sutures or BioBraid infinity loop with needles. Make sure the graft is in good tension by adjusting the clamp. The graft should be covered by a moist sponge.



Fold up the graft and measure the diameter using the Graft sizer (7-014-54). The graft should moderately pass through the hole, not too tightly not too loosely.



Femoral Tunnel Preparation

Select the appropriate size of the Femoral Offset Guide (7-014-01, 7-014-02, 7-014-03). Auxein provides Femoral Guide with different offsets (5/6/7mm). Always ensure that enough posterior cortex (at least 2mm) remains.

Femoral Offset Guide size = Radius of the tunnel + 2mm posterior cortex.

(E.g. If Femoral tunnel diameter is 8 mm, Femoral Offset Guide = 4 + 2 = 6mm)



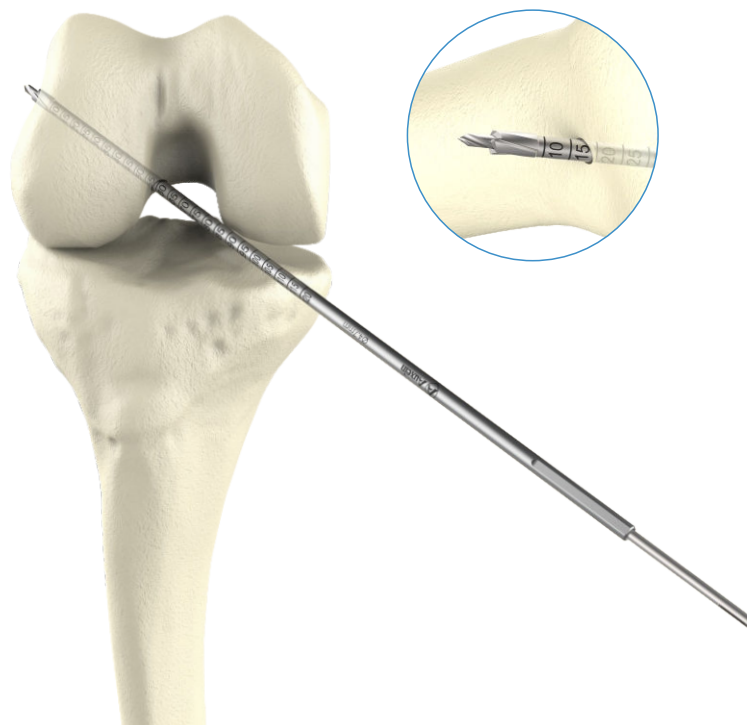
Insert Transportal Femoral Offset Guide through anteromedial portal. Place the hook of the Femoral Offset Guide at the over-the-top position, in direct contact with the bony cortex. For ideal position of the footprint of ACL, use 10–11 o'clock in the right knee or 1–2 o'clock in the left knee as the reference.



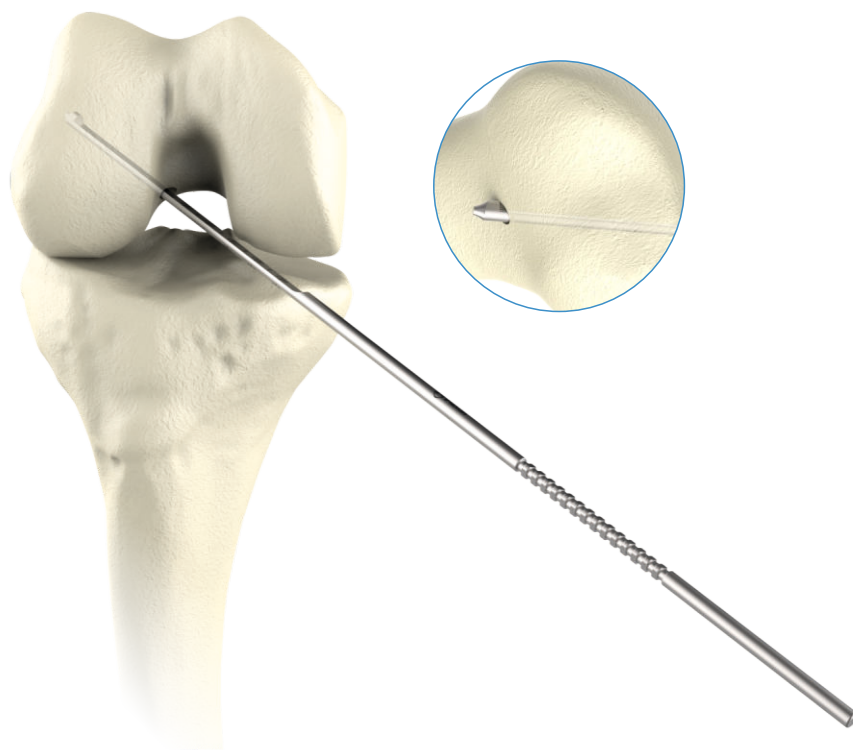
Use the Pin, Drill Tip, Ø2.4mm (7-014-66, 7-014-67) to drill through the femur and penetrate the skin.



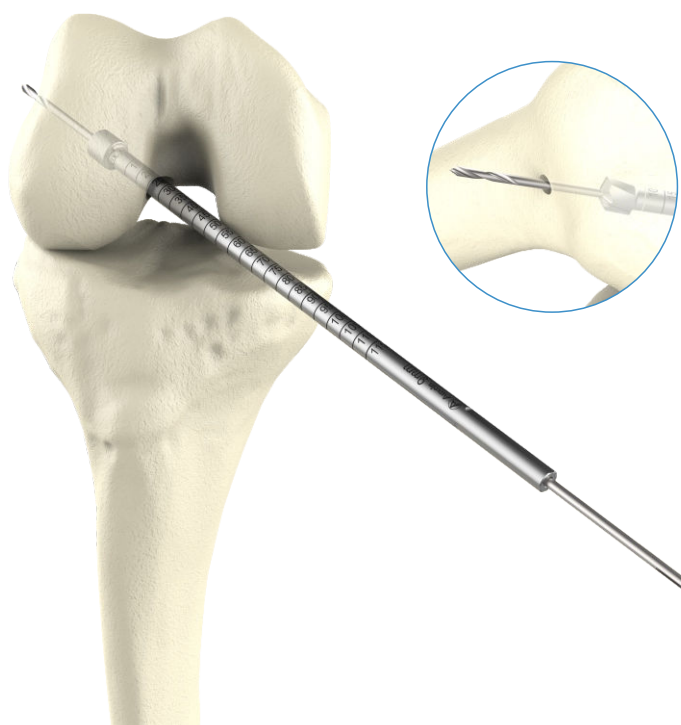
A Cannulated Headed Reamer, Ø4.7mm (7-014-06) is used over Drill Tip pin to make the femur passing channel.



Measure the total length of passing tunnel using the Depth Gauge for Knee ACL/PCL Instrument (7-014-44).



Select the appropriate sized Femoral Cannulated Reamer (7-014-20 to 7-014-32) over the Drill Tip pin that corresponds to the graft size needed to create the femoral tunnel. then remove Femoral Cannulated Reamer and Drill Tip pin.



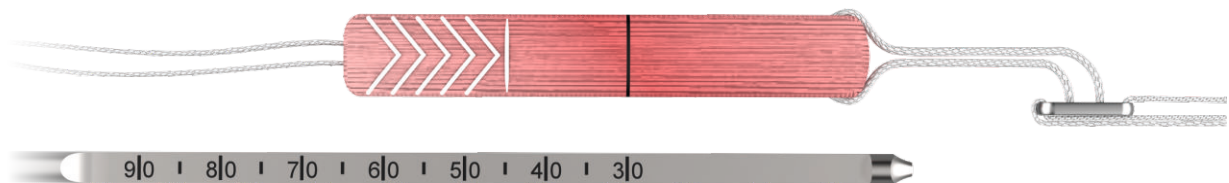
The length of GFS Mini Loop is in relation to the total length of the femoral tunnel and the desired graft inside femoral tunnel.

Loop Length = Total Tunnel Length - Desired Graft Inside Femoral Tunnel.

As it is the closed/fixed loop, the button has to come outside the cortex and to be flipped. For that reaming should be done 10mm extra than the desired graft inside femoral tunnel with the Femoral reamer.

E.g. Total tunnel length is 40mm, the desired graft inside femoral tunnel is 20mm, loop length is 20mm. The reaming with Femoral reamer should be done up to 30mm for button flipping.

Pass the graft through the loop of GFS Mini. Mark a line on the graft 30 mm (the desired graft inside the femoral tunnel) from the looped end of the graft.



Tibial Tunnel Preparation

Assemble the ACL tibial drill guide (Drill Guide Handle, 7-014-33, ACL Tip/ ACL Tip O, 7-014-38, 7-014-37, ACL Tip C Aimer 7-014-35, 7-014-36 and ACL Elbow Aimer 7-014-99).

Fix the angle on Drill Guide Handle (To achieve a longer tibial tunnel, increase the angle of Drill Guide Handle).

Place the tip of drill guide in the centre of ACL footprint.



Push the drill guide bullet (7-014-39) to the bone surface and fix the position.

Use the Ø2.4mm Passing pin (7-014-68) to drill through the tibia. (Monitor the passing pin so not to damage the femoral cartilage).

Disassemble the tibial drill guide. Leave only the Passing pin in place.

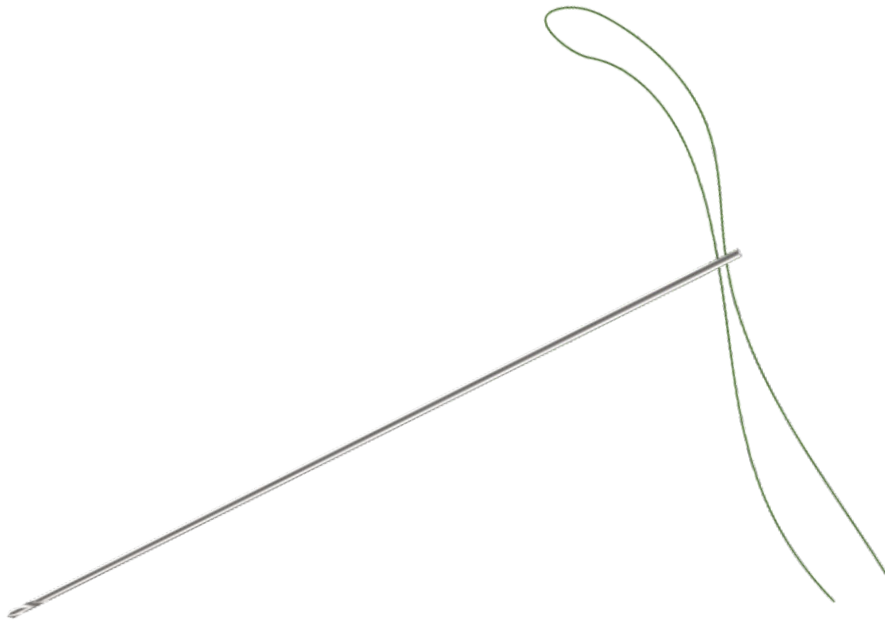


Drill the tibial tunnel using the corresponding Tibial Cannulated Reamer (7-014-07 to 7-014-19) that matches the graft diameter.

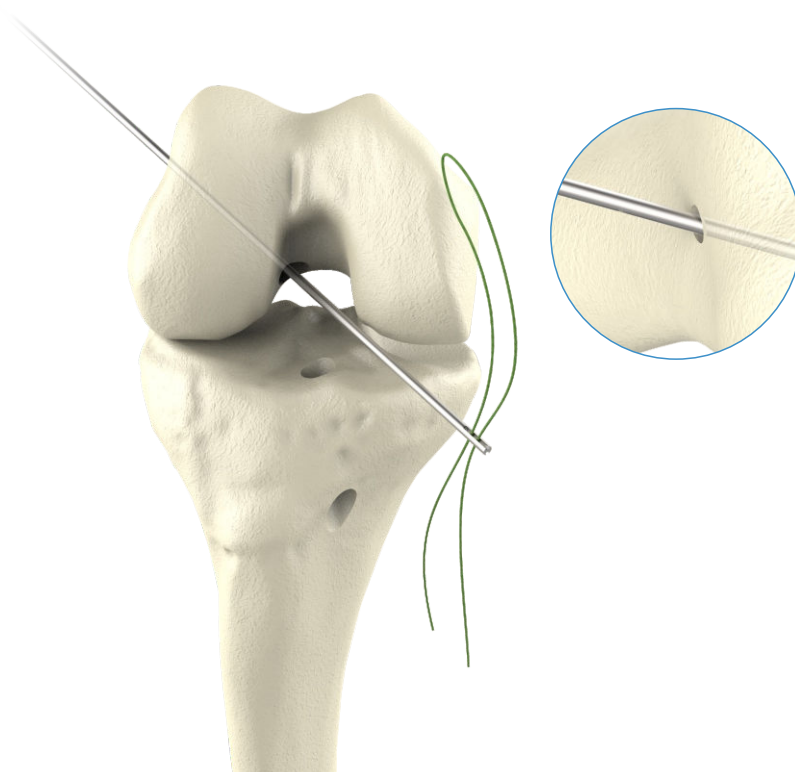


Femoral Fixation

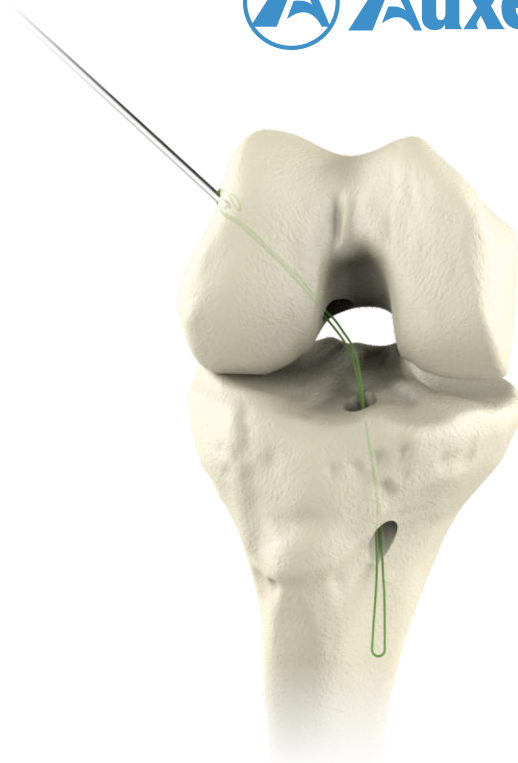
Load a #2 or #5 polyester suture as the passing suture through the eyelet of the Ø2.4mm Drill Tip pin.



Pull the pin through the femoral tunnel. Pass one end of the suture out of the knee joint via femoral tunnel and leave another end of the suture in the knee joint.



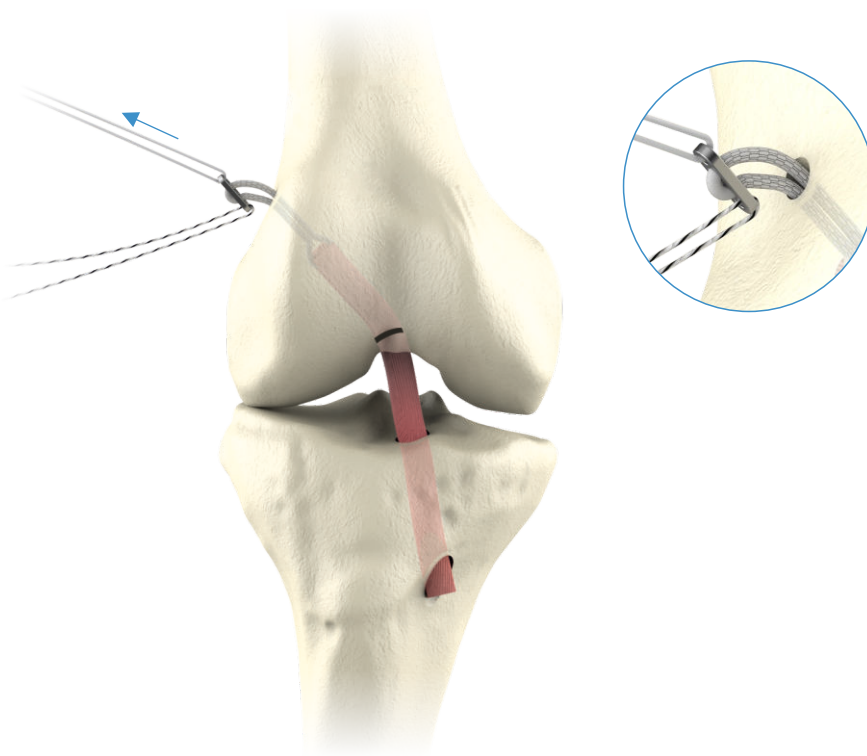
A suture retriever/hook is used to retrieve and pull out the other end of the suture through the tibial tunnel.



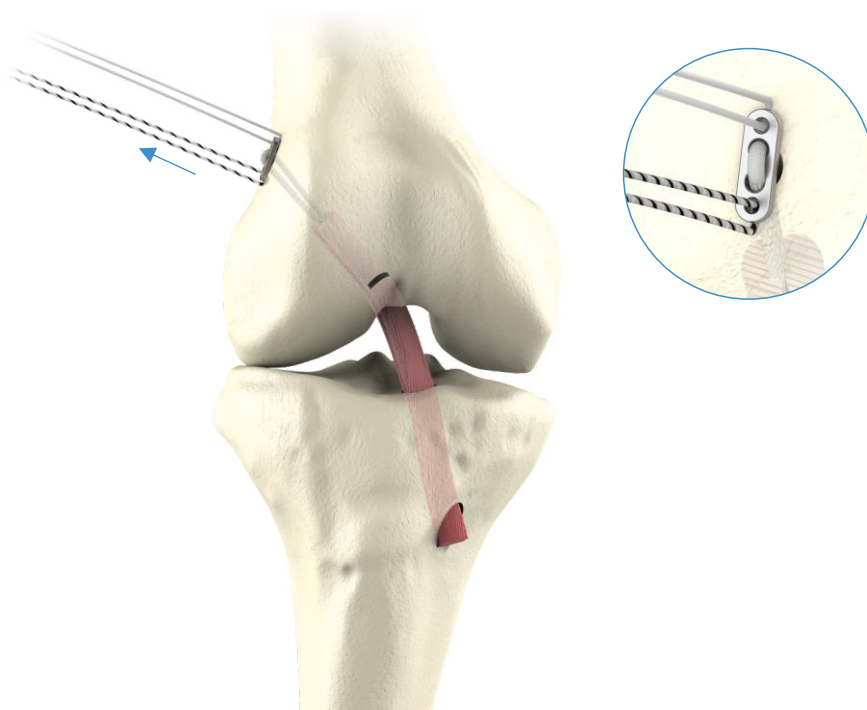
Load both the sutures (Pulling, Flipping and Adjustable) of GFS Mini loop on the passing suture. Pull the passing sutures to pull all the sutures of GFS Mini on lateral side. Then remove the passing suture.



Pull the pulling suture (White) of GFS Mini first to advance the ACL graft into femoral tunnel until the marking line on the graft reaches the internal femoral aperture.



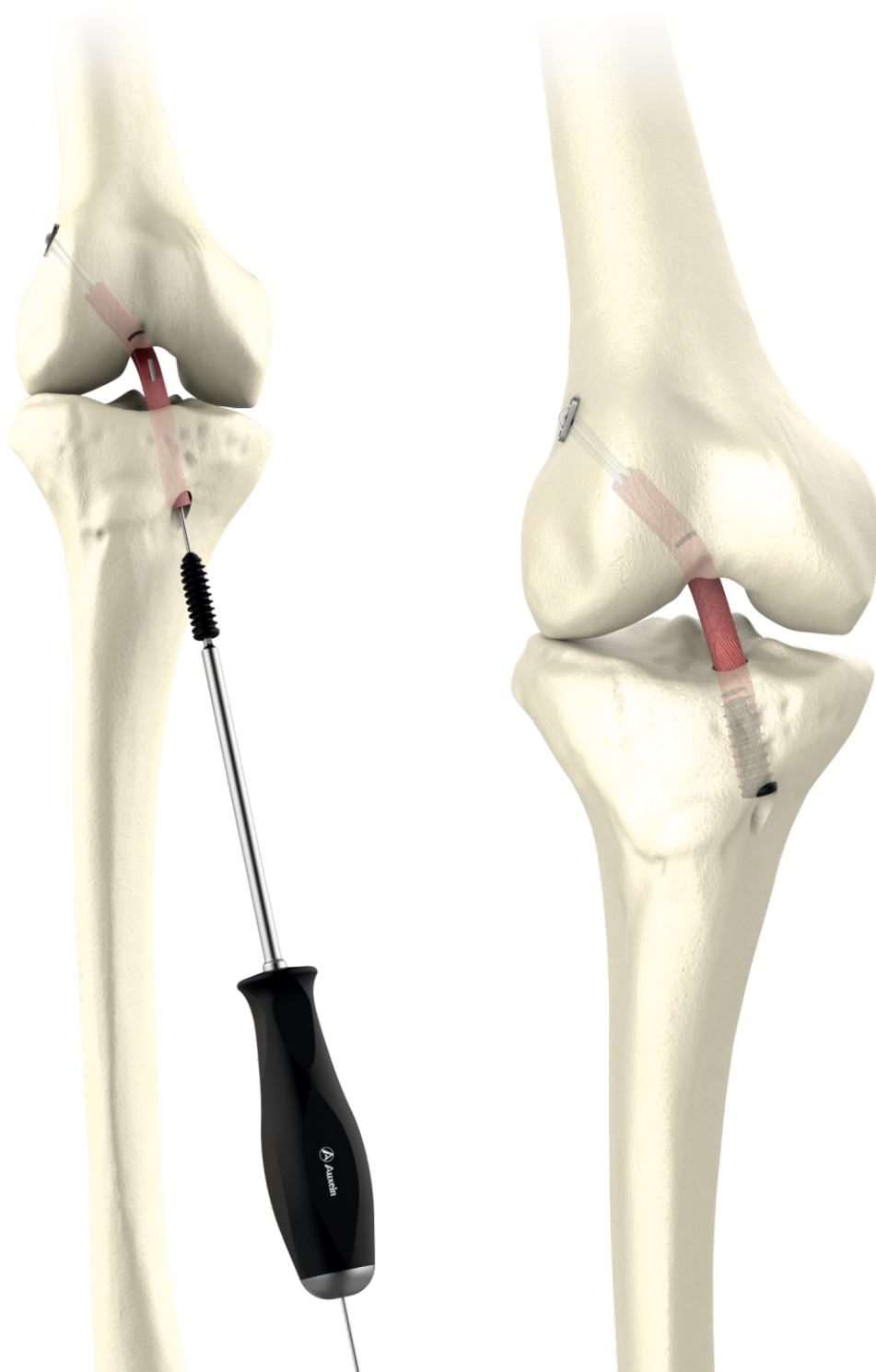
Pull the flipping suture (White/Black) to flip the button on the lateral cortex. Then pull back the graft to lock the button to the femoral cortex. Remove both pulling and flipping suture by just pulling it.



Tibial Fixation

Advance Nitinol Guide Wire Ø1.2mm x Length 400mm (7-014-43) into tibial tunnel. Insert interference screw (Titanium/ PEEK OPTIMA/ PEEK CF) with the cannulated screwdriver (7-014-04, 7-014-05) (match screwdriver with the interference screw) over the guide wire. Insert the screw up to the tibial plateau, but ensure that the screw tip remains completely inside the bone.

Cut off the excess graft outside the tibial tunnel.



ORDERING INFORMATION

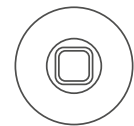
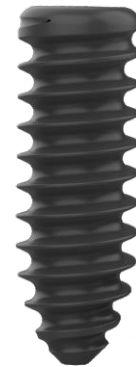
GFS Mini

Code	Product Description
6-007-01	AUXILOCK® GFS Mini, Loop: 12mm, Button L: 12mm, W: 3.9mm
6-007-02	AUXILOCK® GFS Mini, Loop: 15mm, Button L: 12mm, W: 3.9mm
6-007-03	AUXILOCK® GFS Mini, Loop: 20mm, Button L: 12mm, W: 3.9mm
6-007-04	AUXILOCK® GFS Mini, Loop: 25mm, Button L: 12mm, W: 3.9mm
6-007-05	AUXILOCK® GFS Mini, Loop: 30mm, Button L: 12mm, W: 3.9mm
6-007-06	AUXILOCK® GFS Mini, Loop: 35mm, Button L: 12mm, W: 3.9mm
6-007-07	AUXILOCK® GFS Mini, Loop: 40mm, Button L: 12mm, W: 3.9mm
6-007-08	AUXILOCK® GFS Mini, Loop: 45mm, Button L: 12mm, W: 3.9mm
6-007-09	AUXILOCK® GFS Mini, Loop: 50mm, Button L: 12mm, W: 3.9mm
6-007-10	AUXILOCK® GFS Mini, Loop: 55mm, Button L: 12mm, W: 3.9mm



PEEK CF Interference Screw

Code	Product Description
6-009-01	AUXILOCK® 7mm x 20mm PEEK CF Interference Screw
6-009-02	AUXILOCK® 7mm x 25mm PEEK CF Interference Screw
6-009-03	AUXILOCK® 7mm x 30mm PEEK CF Interference Screw
6-009-04	AUXILOCK® 8mm x 20mm PEEK CF Interference Screw
6-009-05	AUXILOCK® 8mm x 25mm PEEK CF Interference Screw
6-009-06	AUXILOCK® 8mm x 30mm PEEK CF Interference Screw
6-009-07	AUXILOCK® 8mm x 35mm PEEK CF Interference Screw
6-009-08	AUXILOCK® 9mm x 20mm PEEK CF Interference Screw
6-009-09	AUXILOCK® 9mm x 25mm PEEK CF Interference Screw
6-009-10	AUXILOCK® 9mm x 30mm PEEK CF Interference Screw
6-009-11	AUXILOCK® 9mm x 35mm PEEK CF Interference Screw
6-009-12	AUXILOCK® 10mm x 25mm PEEK CF Interference Screw
6-009-13	AUXILOCK® 10mm x 30mm PEEK CF Interference Screw
6-009-14	AUXILOCK® 10mm x 35mm PEEK CF Interference Screw
6-009-15	AUXILOCK® 11mm x 25mm PEEK CF Interference Screw
6-009-16	AUXILOCK® 11mm x 30mm PEEK CF Interference Screw
6-009-17	AUXILOCK® 11mm x 35mm PEEK CF Interference Screw
6-009-18	AUXILOCK® 12mm x 25mm PEEK CF Interference Screw
6-009-19	AUXILOCK® 12mm x 30mm PEEK CF Interference Screw
6-009-20	AUXILOCK® 12mm x 35mm PEEK CF Interference Screw

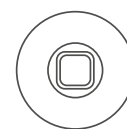


Square Drive

PEEK OPTIMA Interference Screw

Code	Product Description
6-014-01	AUXILOCK® 7mm x 20mm PEEK OPTIMA Interference Screw
6-014-02	AUXILOCK® 7mm x 25mm PEEK OPTIMA Interference Screw
6-014-03	AUXILOCK® 7mm x 30mm PEEK OPTIMA Interference Screw
6-014-04	AUXILOCK® 8mm x 20mm PEEK OPTIMA Interference Screw
6-014-05	AUXILOCK® 8mm x 25mm PEEK OPTIMA Interference Screw
6-014-06	AUXILOCK® 8mm x 30mm PEEK OPTIMA Interference Screw
6-014-07	AUXILOCK® 8mm x 35mm PEEK OPTIMA Interference Screw
6-014-08	AUXILOCK® 9mm x 20mm PEEK OPTIMA Interference Screw
6-014-09	AUXILOCK® 9mm x 25mm PEEK OPTIMA Interference Screw

Code	Product Description
6-014-10	AUXILOCK® 9mm x 30mm PEEK OPTIMA Interference Screw
6-014-11	AUXILOCK® 9mm x 35mm PEEK OPTIMA Interference Screw
6-014-12	AUXILOCK® 10mm x 25mm PEEK OPTIMA Interference Screw
6-014-13	AUXILOCK® 10mm x 30mm PEEK OPTIMA Interference Screw
6-014-14	AUXILOCK® 10mm x 35mm PEEK OPTIMA Interference Screw
6-014-15	AUXILOCK® 11mm x 25mm PEEK OPTIMA Interference Screw
6-014-16	AUXILOCK® 11mm x 30mm PEEK OPTIMA Interference Screw
6-014-17	AUXILOCK® 11mm x 35mm PEEK OPTIMA Interference Screw
6-014-18	AUXILOCK® 12mm x 25mm PEEK OPTIMA Interference Screw
6-014-19	AUXILOCK® 12mm x 30mm PEEK OPTIMA Interference Screw
6-014-20	AUXILOCK® 12mm x 35mm PEEK OPTIMA Interference Screw



Square Drive

Titanium Interference Screw

Code	Product Description
6-010-01	AUXILOCK® 7mm x 20mm Titanium Interference Screw
6-010-02	AUXILOCK® 7mm x 25mm Titanium Interference Screw
6-010-03	AUXILOCK® 7mm x 30mm Titanium Interference Screw
6-010-04	AUXILOCK® 7mm x 35mm Titanium Interference Screw
6-010-05	AUXILOCK® 8mm x 20mm Titanium Interference Screw
6-010-06	AUXILOCK® 8mm x 25mm Titanium Interference Screw
6-010-07	AUXILOCK® 8mm x 30mm Titanium Interference Screw
6-010-08	AUXILOCK® 8mm x 35mm Titanium Interference Screw
6-010-09	AUXILOCK® 9mm x 20mm Titanium Interference Screw
6-010-10	AUXILOCK® 9mm x 25mm Titanium Interference Screw
6-010-11	AUXILOCK® 9mm x 30mm Titanium Interference Screw
6-010-12	AUXILOCK® 9mm x 35mm Titanium Interference Screw
6-010-13	AUXILOCK® 10mm x 25mm Titanium Interference Screw
6-010-14	AUXILOCK® 10mm x 30mm Titanium Interference Screw
6-010-15	AUXILOCK® 10mm x 35mm Titanium Interference Screw
6-010-16	AUXILOCK® 11mm x 25mm Titanium Interference Screw
6-010-17	AUXILOCK® 11mm x 30mm Titanium Interference Screw
6-010-18	AUXILOCK® 11mm x 35mm Titanium Interference Screw
6-010-19	AUXILOCK® 12mm x 25mm Titanium Interference Screw
6-010-20	AUXILOCK® 12mm x 30mm Titanium Interference Screw
6-010-21	AUXILOCK® 12mm x 35mm Titanium Interference Screw



Star Drive

Code	Product Description
6-010-01-S	AUXILOCK® 7mm x 20mm Titanium Interference Screw, Sterile
6-010-02-S	AUXILOCK® 7mm x 25mm Titanium Interference Screw, Sterile
6-010-03-S	AUXILOCK® 7mm x 30mm Titanium Interference Screw, Sterile
6-010-04-S	AUXILOCK® 7mm x 35mm Titanium Interference Screw, Sterile
6-010-05-S	AUXILOCK® 8mm x 20mm Titanium Interference Screw, Sterile
6-010-06-S	AUXILOCK® 8mm x 25mm Titanium Interference Screw, Sterile
6-010-07-S	AUXILOCK® 8mm x 30mm Titanium Interference Screw, Sterile
6-010-08-S	AUXILOCK® 8mm x 35mm Titanium Interference Screw, Sterile
6-010-09-S	AUXILOCK® 9mm x 20mm Titanium Interference Screw, Sterile
6-010-10-S	AUXILOCK® 9mm x 25mm Titanium Interference Screw, Sterile
6-010-11-S	AUXILOCK® 9mm x 30mm Titanium Interference Screw, Sterile
6-010-12-S	AUXILOCK® 9mm x 35mm Titanium Interference Screw, Sterile
6-010-13-S	AUXILOCK® 10mm x 25mm Titanium Interference Screw, Sterile

Code	Product Description
6-010-14-S	AUXILOCK® 10mm x 30mm Titanium Interference Screw, Sterile
6-010-15-S	AUXILOCK® 10mm x 35mm Titanium Interference Screw, Sterile
6-010-16-S	AUXILOCK® 11mm x 25mm Titanium Interference Screw, Sterile
6-010-17-S	AUXILOCK® 11mm x 30mm Titanium Interference Screw, Sterile
6-010-18-S	AUXILOCK® 11mm x 35mm Titanium Interference Screw, Sterile
6-010-19-S	AUXILOCK® 12mm x 25mm Titanium Interference Screw, Sterile
6-010-20-S	AUXILOCK® 12mm x 30mm Titanium Interference Screw, Sterile
6-010-21-S	AUXILOCK® 12mm x 35mm Titanium Interference Screw, Sterile

RECOMMENDED INSTRUMENTATION

Transportal Femoral Offset Guide

Code	Offset
7-014-01	5mm
7-014-02	6mm
7-014-03	7mm



7-014-04 Screwdriver For Polymer Interference Screw



7-014-05 Screwdriver For Ti Interference Screw, T25 Star Driver



7-014-06 Cannulated Headed Reamer, Ø4.7mm



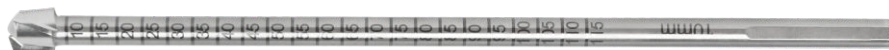
Tibial Cannulated Reamer

Code	Diameter	Code	Diameter	Code	Diameter
7-014-07	Ø6mm	7-014-12	Ø8.5mm	7-014-16	Ø10.5mm
7-014-08	Ø6.5mm	7-014-13	Ø9mm	7-014-17	Ø11mm
7-014-09	Ø7mm	7-014-14	Ø9.5mm	7-014-18	Ø11.5mm
7-014-10	Ø7.5mm	7-014-15	Ø10mm	7-014-19	Ø12mm
7-014-11	Ø8mm				



Femoral Cannulated Reamer

Code	Diameter	Code	Diameter	Code	Diameter
7-014-20	Ø6mm	7-014-25	Ø8.5mm	7-014-29	Ø10.5mm
7-014-21	Ø6.5mm	7-014-26	Ø9mm	7-014-30	Ø11mm
7-014-22	Ø7mm	7-014-27	Ø9.5mm	7-014-31	Ø11.5mm
7-014-23	Ø7.5mm	7-014-28	Ø10mm	7-014-32	Ø12mm
7-014-24	Ø8mm				



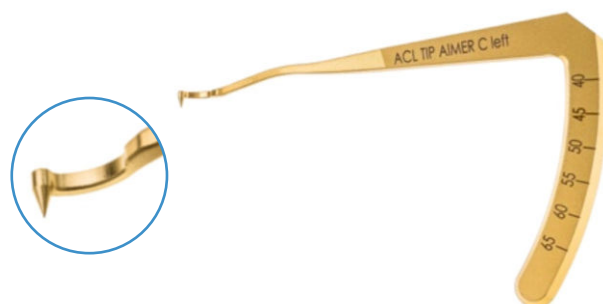
7-014-33 Drill Guide Handle



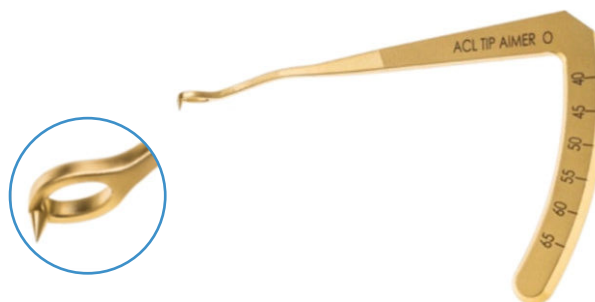
7-014-35 ACL Tip C Aimer, Right



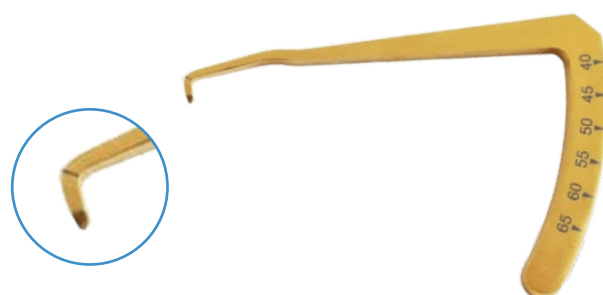
7-014-36 ACL Tip C Aimer, Left



7-014-37 ACL Tip O Aimer



7-014-38 ACL Tip Aimer



7-014-39 Drill Guide Bullet



7-014-43 Nitinol Guide Wire Ø1.2mm x Length 400mm (For Interference Screws)



7-014-44 Depth Gauge For Knee ACL/PCL Instrument



Transtibial Femoral Offset Guide

Code	Offset
7-014-45	5mm
7-014-46	6mm
7-014-47	7mm



Tendon Stripper (Closed End)

Code	Diameter
7-014-48	Ø6mm
7-014-49	Ø7mm
7-014-50	Ø8mm

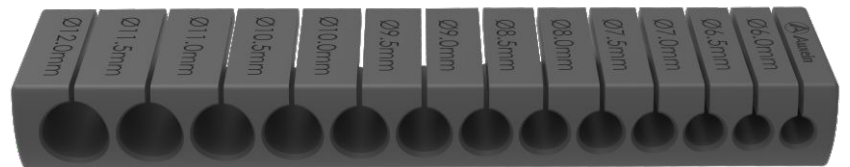


Tendon Stripper (Open End)

Code	Diameter
7-014-51	Ø6mm
7-014-52	Ø7mm
7-014-53	Ø8mm



7-014-54 Graft Sizer, 6mm to 12mm (0.5mm steps)



7-014-55 Quick Coupling T-Handle For Tunnel Dilator



Tunnel Dilator, Cannulated

Code	Diameter
7-014-56	Ø6mm
7-014-57	Ø7mm
7-014-58	Ø8mm
7-014-59	Ø9mm
7-014-60	Ø10mm



Rasp

Code	Shape
7-014-61	Straight Rasp
7-014-62	Convex Rasp
7-014-63	Half-Round Rasp



7-014-64 Curette, 25° Angled Down



7-014-65 Arthroscopic Probe - Knee



7-014-66 Pin, Trocar-Tip, Ø2.4mm x 355mm



7-014-67 Pin, Drill Tip, Ø2.4mm x 355mm

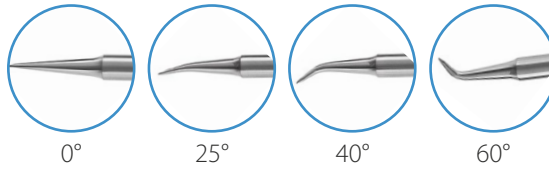


7-014-68 Passing Pin, Ø2.4mm x 250mm



Micro Fracture Awl

Code	Angle
7-014-69	0°
7-014-70	25°
7-014-71	40°
7-014-72	60°

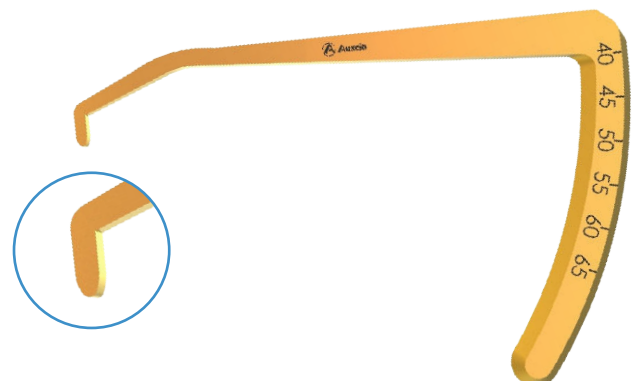


Tunnel Plug

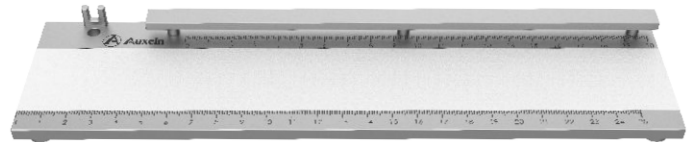
Code	Dia
7-014-73	7-8mm
7-014-74	8-9mm
7-014-75	9-10mm



7-014-99 ACL Elbow Aimer



7-017-01 Graft Station



7-017-02 Sliding Base



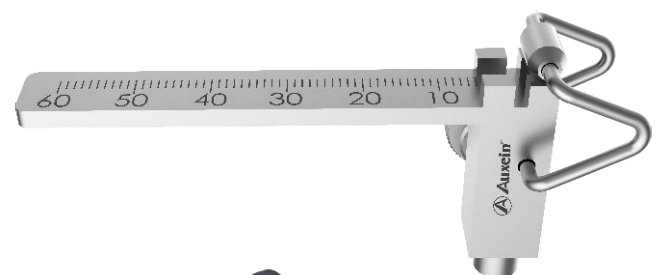
7-017-03 Graft Grasper Clamp - Left



7-017-04 Graft Grasper Clamp - Right



7-017-05 Button Holder With Scale



7-017-06 Suture Holder With Tensioner



OPTIONAL INSTRUMENTS

7-014-42 Ratchet Handle For Hudson Coupling Screwdriver Shaft



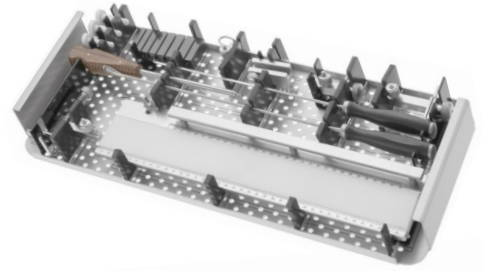
7-014-95 Screwdriver Shaft For Titanium Interference Screw, T25 Star Driver, Hudson Coupling



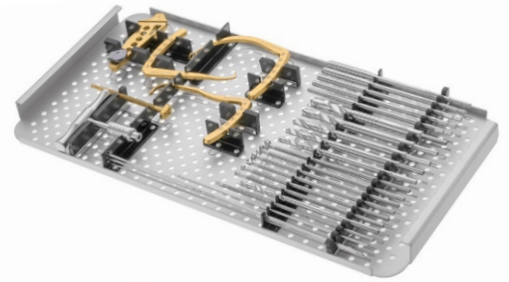
7-014-96 Screwdriver Shaft For Polymer Interference Screw, Hudson Coupling



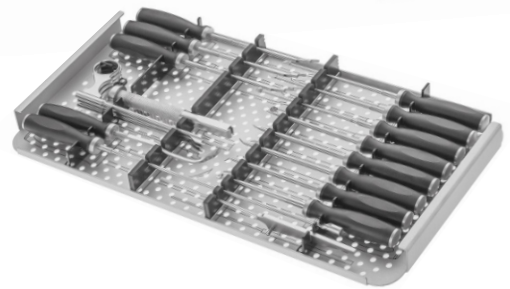
7-014-78 Tray C For Graft Station Instruments



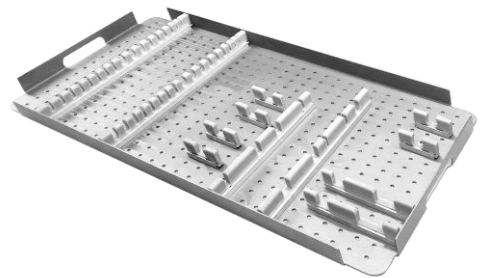
7-014-79 Tray A For ACL/PCL Instruments



7-014-80 Tray B For ACL/PCL Instruments



7-014-98 Tray D For ACL/PCL Instruments



7-014-81 Container For ACL/PCL Instrument Set



7-014-82 Lid For Container, ACL/PCL Instrument Set





USA

Auxein Inc.
1500 Nw 89th Court, Suite 107-108
Doral, Florida 33172
Tel: +1 305 395 6062
E Fax: +1 305 395 6262
Email: USoffice@auxein.com

MEXICO

Auxein México, S.A. de C.V.
Tepic 139 int 801, Colonia Roma Sur,
Alcaldía Cuauhtémoc, CDMX,
México, C.P. 06760
Tel: +521 55 7261 0318
Email: info@auxein.mx

INDIA

Auxein Medical Pvt. Ltd.
Plot No. 168-169-170, Phase-4,
Kundli Industrial Area,
HSIIDC, Sector-57, Sonapat - 131028, Haryana
Tel: +91 99106 43638 | Fax: +91 86077 70197
Email: info@auxein.com

www.auxein.com

