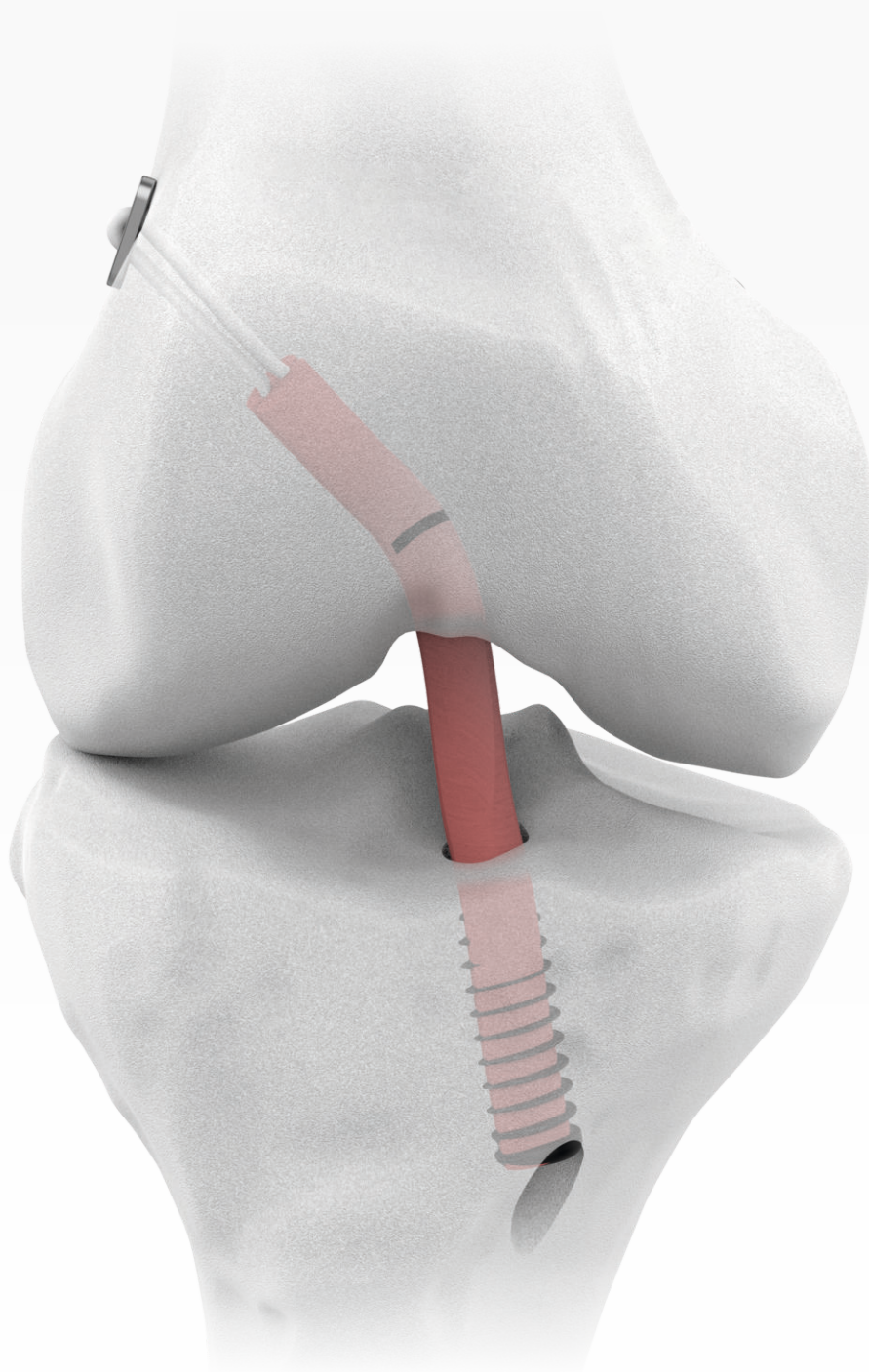


Surgical Technique

ACL Reconstruction using

AUXILOCK[®] GFS Mini & AUXILOCK[®] Interference Screw

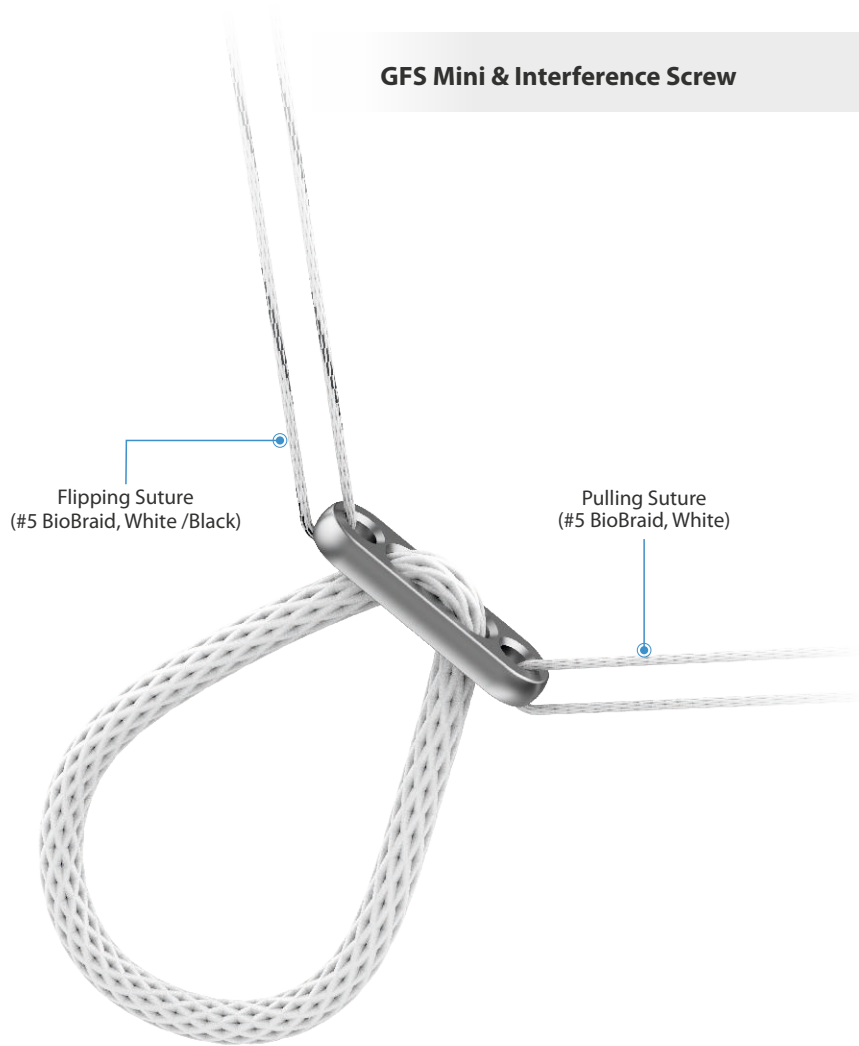


PRODUCT OVERVIEW

GFS Mini

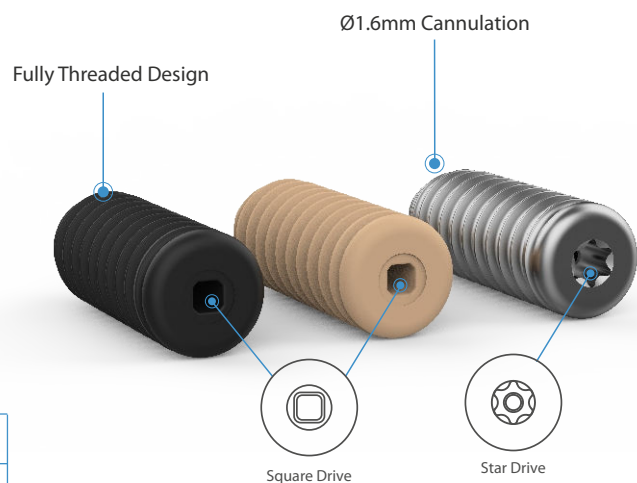
GFS Mini is a fixed loop with an oblong shaped button used for Graft Fixations in ACL/PCL Reconstruction. Being a continuous loop without any joint, GFS Mini provides a stronger fixation while eliminating the need for knot tying. The pre-loaded pulling and flipping braided sutures are available to ensure controlled pulling and flipping of the button in the transosseous tunnel. A 4.5mm 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 is made of titanium material.

- Pulling Suture (#5, White) : It is available to pull the graft inside the tunnel.
- Flipping Suture (#5, White/Black) : It ensures the flipping of the button.



Interference Screw

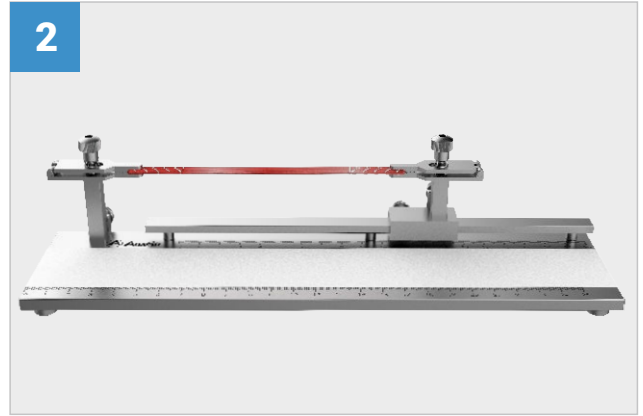
The Interference Screws are available in Titanium, PEEK OPTIMA and PEEK CF. The Interference Screw has a fully threaded design which provides strong mechanical fixation for both bone tendon bone (BTB) and soft tissue grafts. Being a cannulated screw, it is used with a guide wire and a cannulated screw 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.



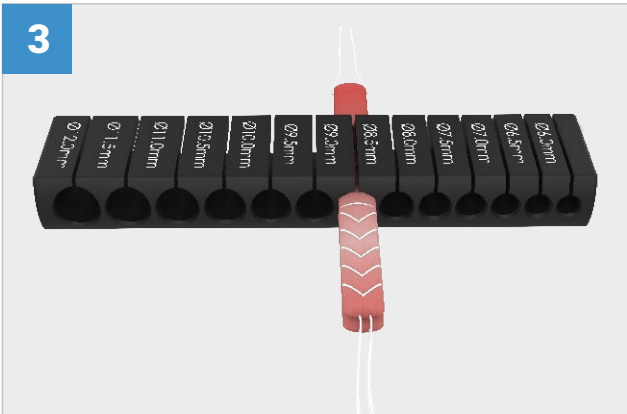
| Diameter in mm | Length in mm (Polymer) | Length in mm (Ti) |
|----------------|------------------------|-------------------|
| 7, 8, 9 | 20, 25, 30 | 20, 25, 30, 35 |
| 10, 11, 12 | 25, 30, 35 | 25, 30, 35 |



1 Harvest desired tendons using tendon stripper (Open end/Closed end) Put the tendons on the graft station where residual muscle is removed.



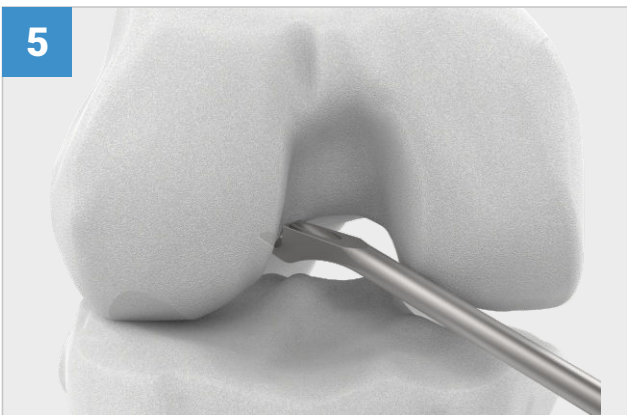
2 Whip-stitch end of the graft using BioBraid sutures or BioBraid infinity loop with needles. Make sure the graft is in good tension by adjusting the clamp. The graft should be covered by a moist sponge.



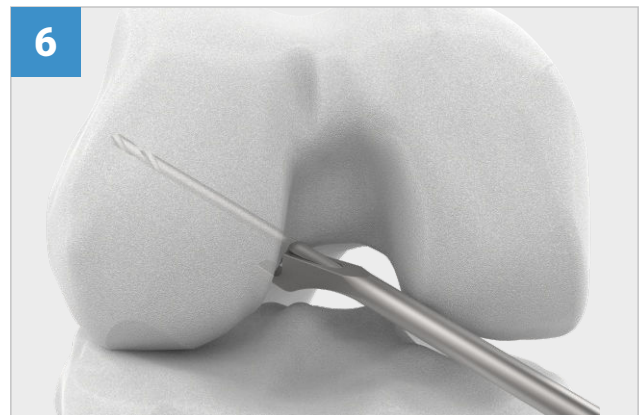
3 Fold up the graft and measure the diameter using the Graft sizer The graft should moderately pass through the hole, not too tightly not too loosely.



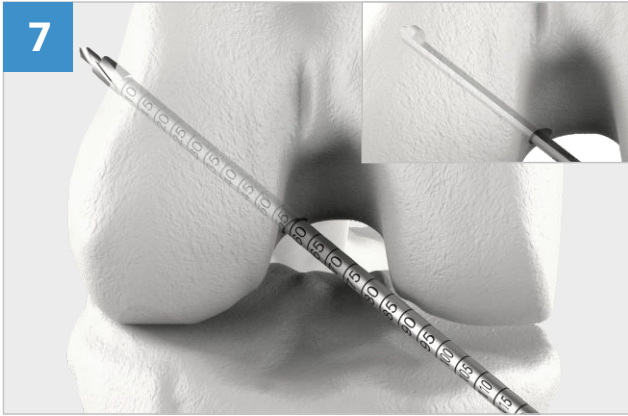
4 Select the appropriate size of the Femoral Offset Guide (5/6/7mm). Always ensure that enough posterior cortex (at least 2mm) remains.
 Femoral Offset Guide size = Radius of the tunnel + 2mm posterior cortex.
 (E.g. If Femoral tunnel diameter is 8 mm, Femoral Offset Guide = $4 + 2 = 6\text{mm}$).



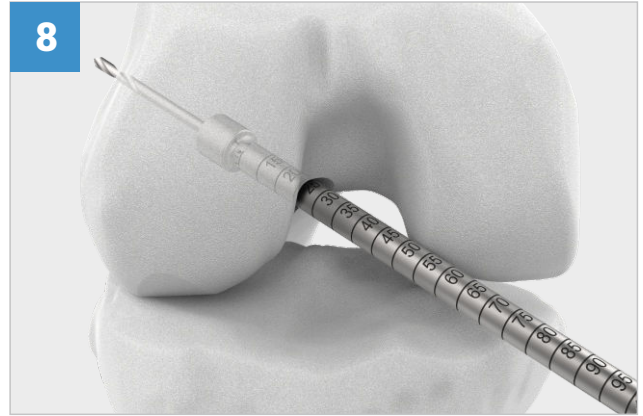
5 Insert Transportal Femoral Offset Guide through anteromedial portal. Place the hook of the Femoral Offset Guide at the over-the-top position, in direct contact with the bony cortex. For ideal position of the footprint of ACL, use 10–11 o'clock in the right knee or 1–2 o'clock in the left knee as the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



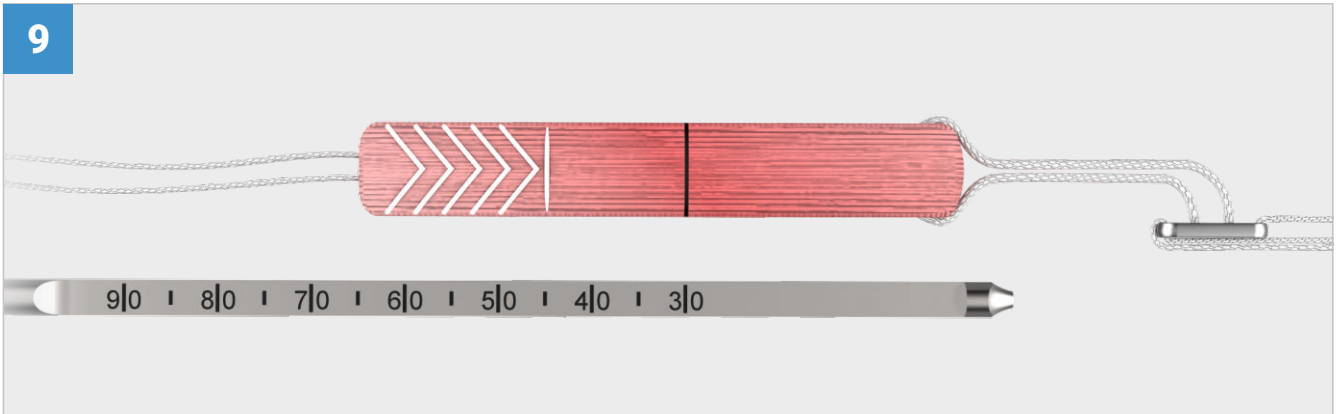
6 Use the Pin, Drill Tip, Ø2.4mm to drill through the femur and penetrate the skin.



7
A Cannulated Headed Reamer, Ø4.7mm 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.



8
Select the appropriate sized Femoral Cannulated Reamer 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.

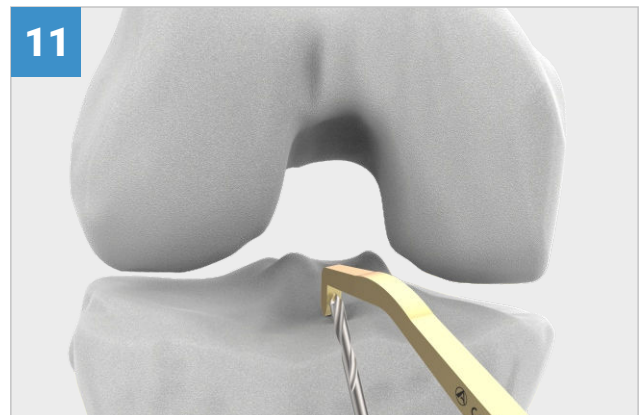


9
The length of GFS Mini Loop is in relation to the total length of the femoral tunnel and the desired graft inside femoral tunnel. Loop Length = Total Tunnel Length - Desired Graft Inside Femoral Tunnel. As it is the closed/fixed loop, the button has to come outside the cortex and to be flipped. For 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.

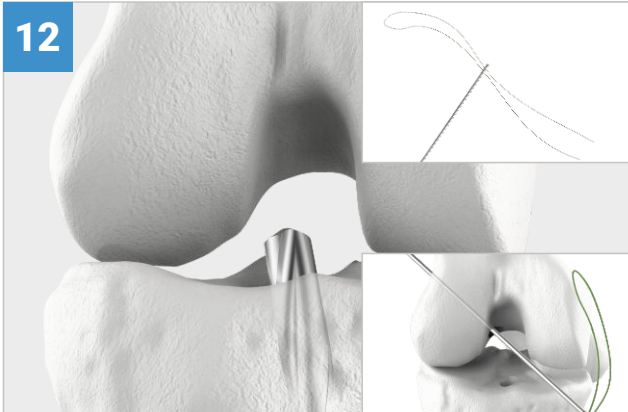


10
Assemble the ACL tibial drill guide (Drill Guide Handle ACL Tip/ ACL Tip O, ACL Tip C Aimer and ACL Elbow Aimer).

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.

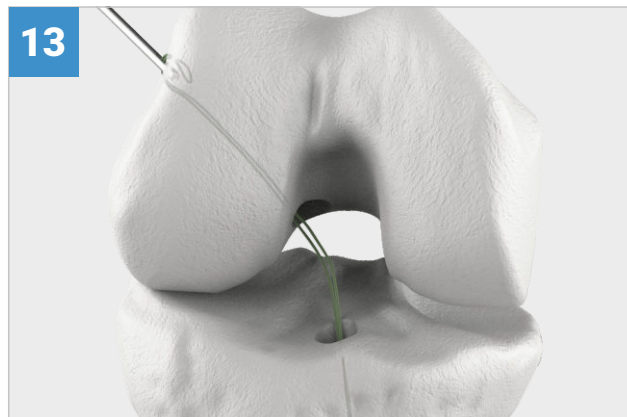


11
Push the drill guide bullet to the bone surface and fix the position. Use the Ø2.4mm Passing pin to drill through the tibia. (Monitor the passing pin so not to damage the femoral cartilage). Disassemble the tibial drill guide. Leave only the Passing pin in place.
Drill the tibial tunnel using the corresponding Tibial Cannulated Reamer that matches the graft diameter.



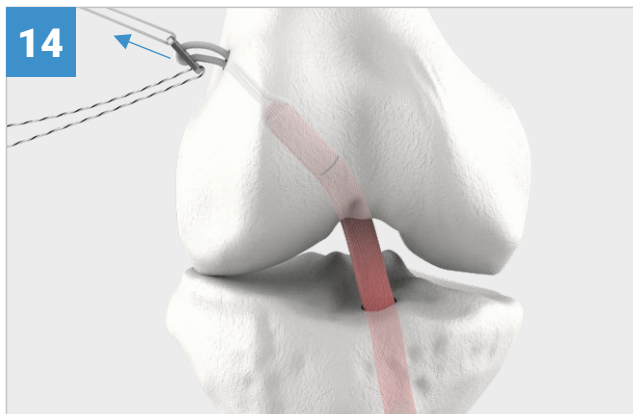
Drill the tibial tunnel using the corresponding Tibial Cannulated Reamer that matches the graft diameter. Load a #2 or #5 polyester suture as the passing suture through the eyelet of the Ø2.4mm Drill Tip pin.

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.

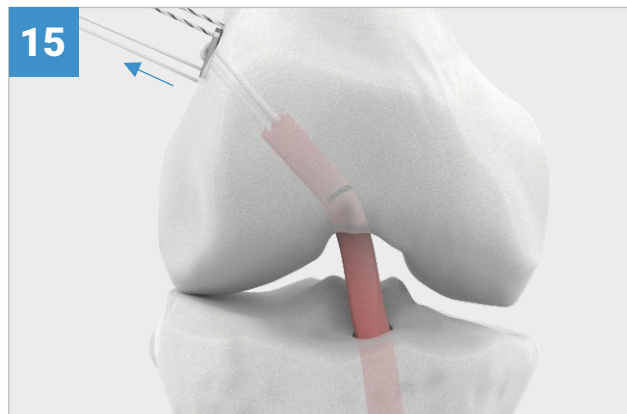


A suture retriever/hook is used to retrieve and pull out the other end of the suture through the tibial tunnel.

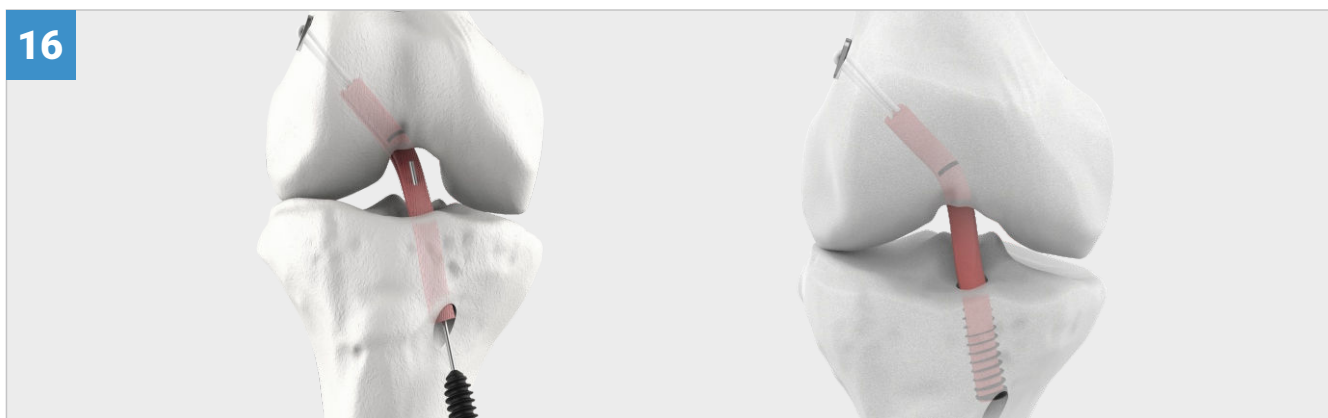
Load both the sutures (Pulling, Flipping and Adjustable) of GFS Mini loop on the passing suture. Pull the passing sutures to pull all the sutures of GFS Mini on lateral side. Then remove the passing suture.



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.



Advance Nitinol Guide Wire Ø1.2mm x Length 400mm into tibial tunnel. Insert interference screw (Titanium/ PEEK OPTIMA/ PEEK CF) with the cannulated screwdriver (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 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 |
| 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 |

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 |

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 |

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