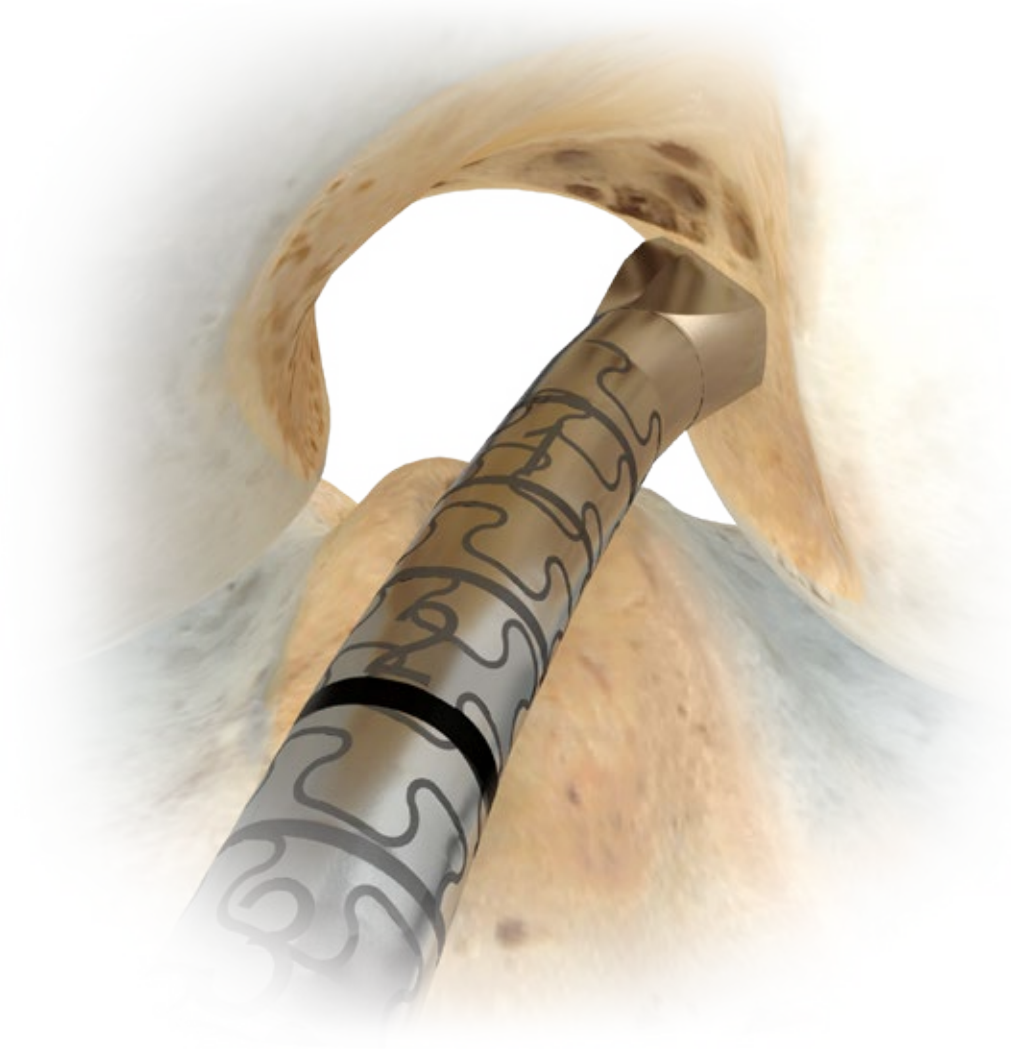
Medial Portal ACL Reconstruction

with Precision Flexible Reaming Instrumentation

Surgical Technique



ZIMMER BIOMET

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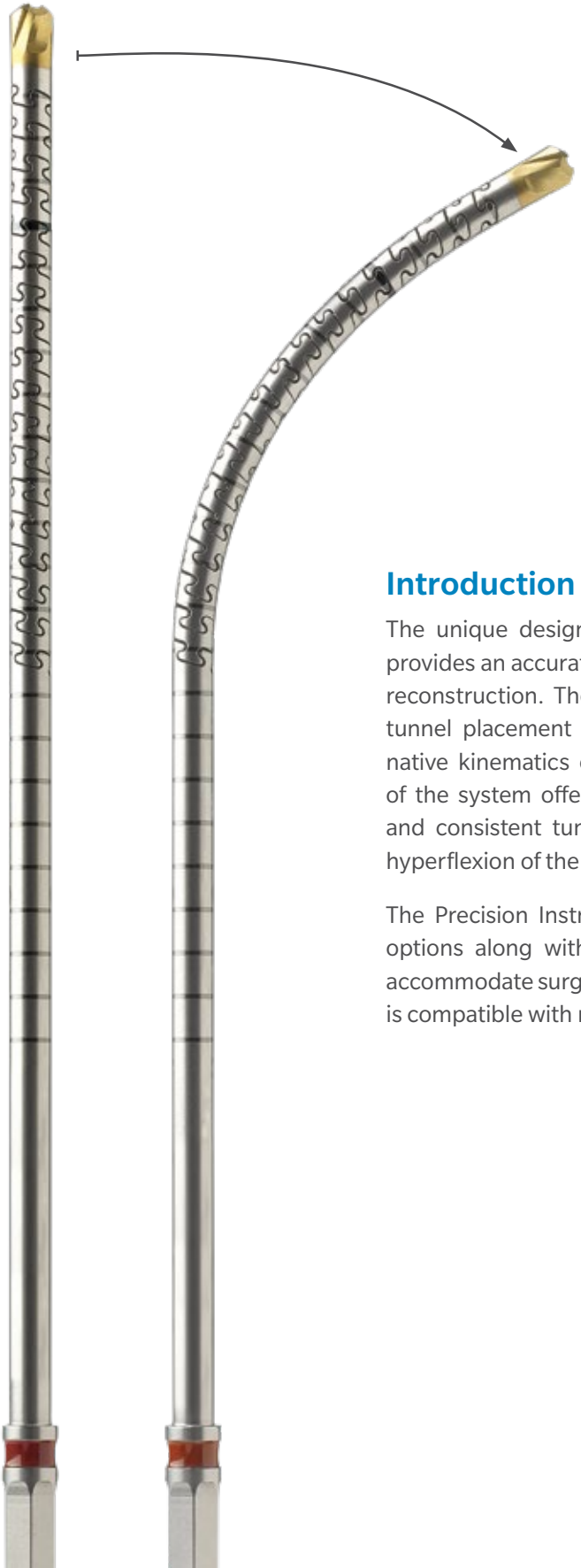

Introduction

The unique design of the Precision Flexible Instrumentation provides an accurate and reproducible system for anatomic ACL reconstruction. The curved guides and flexible drills facilitate tunnel placement at the true ligament origin, optimizing the native kinematics of the ACL graft. The dual plane geometry of the system offers the additional advantages of predictable and consistent tunnel position and length, without requiring hyperflexion of the knee during tunnel preparation.

The Precision Instrumentation allows various offset reference options along with alternative universal free-hand guides to accommodate surgeon preferences and anatomic variations and is compatible with numerous graft fixation options.

Surgical Technique

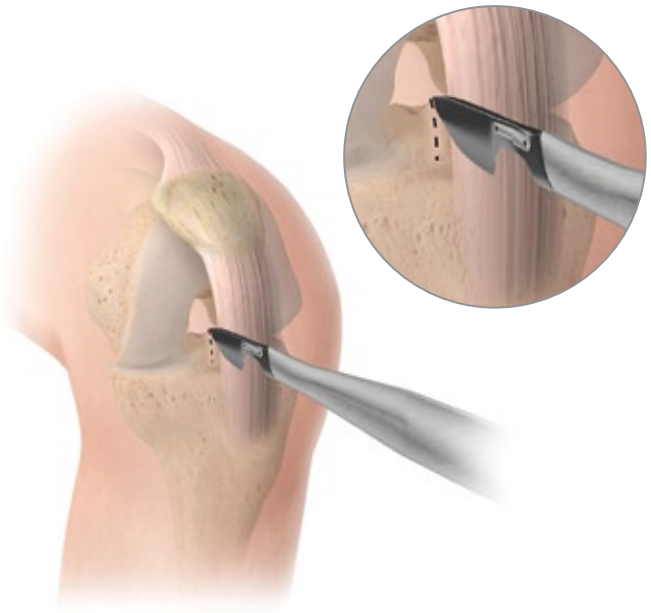

Figure 1

Portals

Make a standard lateral portal for arthroscopic visualization. The medial portal should be made at the medial edge of the patellar tendon at the joint line. The dual plane geometry of the Precision instrumentation eliminates the need for an accessory medial portal (Figure 1).

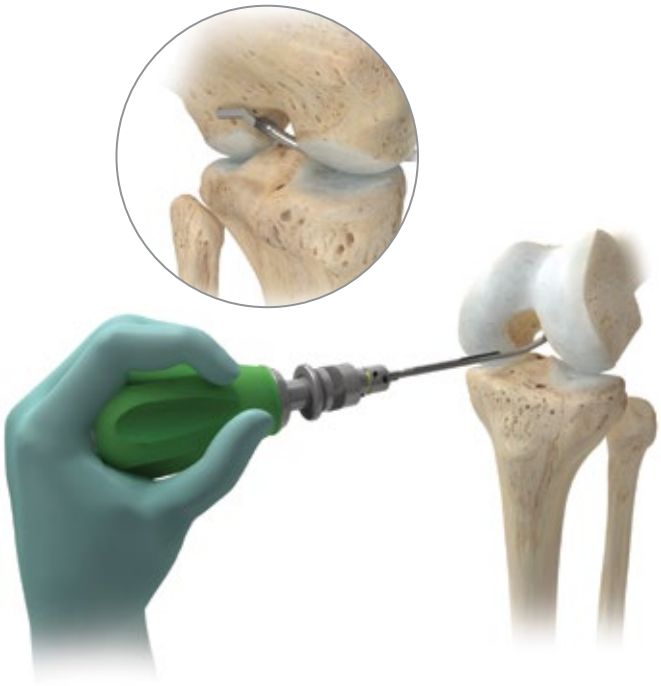

Figure 2

Figure 3

Femoral Tunnel Localization

Select the appropriate Precision Curved Offset Femoral Guide dependent upon the desired margin of corico-cancellous bone at the posterior femur (Chart 1). If free-hand placement at the femoral ACL footprint is preferred, select the Precision Universal Femoral Guide.

Position the appropriate Precision Curved Offset Femoral Guide at the native ACL footprint through the medial portal (Figure 2). Orient the laser-etched line on the shaft of the guide superiorly to the anterior femur (Figure 3).

Back Wall Chart 1

Posterior Femoral Bone Margin (mm)				
Guide	5/6 (4 mm of Offset)	7/8 (5 mm of Offset)	9/10 (6 mm of Offset)	11/12 (7 mm of Offset)
Drill Size (mm)				
5	1.5			
6	1.0	2.0		
7	0.5	1.5		
8		1.0	2.0	
9		0.5	1.5	
10			1.0	2.0
11			0.5	1.5
12				1.0

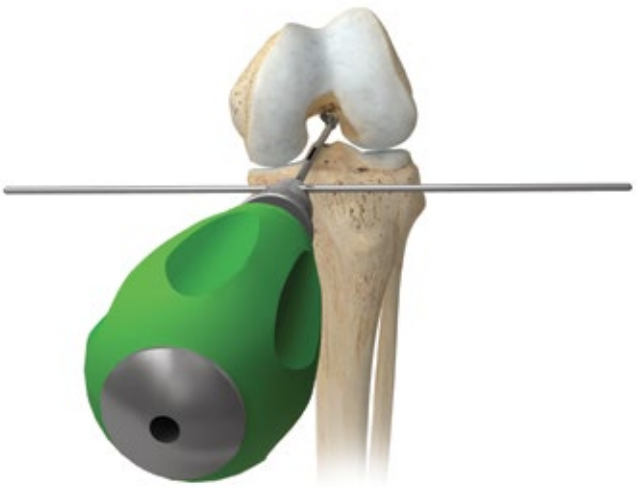

Figure 4

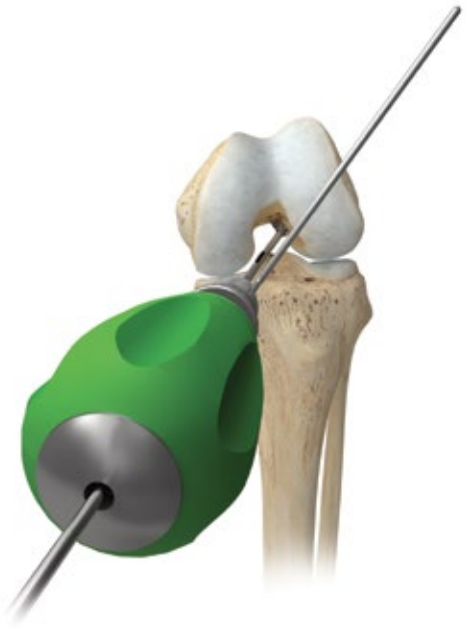

Figure 5

Femoral Tunnel Localization (cont.)

To ensure optimal guide placement, an alignment rod may be inserted through either the coronal hole or the trajectory hole in the collar of the guide. The alignment rod placed in the coronal hole should be parallel to the joint line (Figure 4).

Alternatively, in the trajectory hole, the alignment rod indicates the exit of the Nitinol guide wire on the lateral femoral cortex (Figure 5).

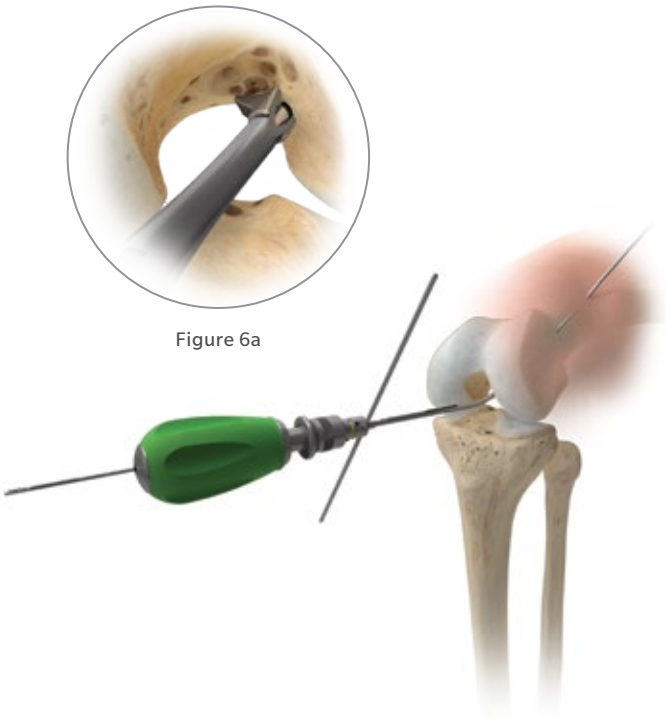

Figure 6a

Figure 6

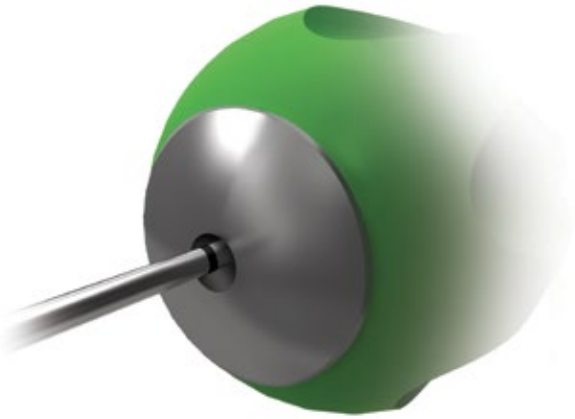

Figure 7

Placement of Nitinol Guide Wire

Once the Precision Femoral Guide is in position, use a pin driver to advance the Nitinol guide wire under power through the curved guide. Visualize the Nitinol guide wire in the window at the distal end of the guide as it enters the bone. Advance the Nitinol guide wire through the lateral femoral cortex to exit the skin on the lateral thigh (Figure 6) until the black laser line on the Nitinol guide wire meets the femoral bone in the notch (Figure 6a).

For an additional reference, match the secondary laser line on the Nitinol guide wire with the back of the green handle (Figure 7).

Figure 8

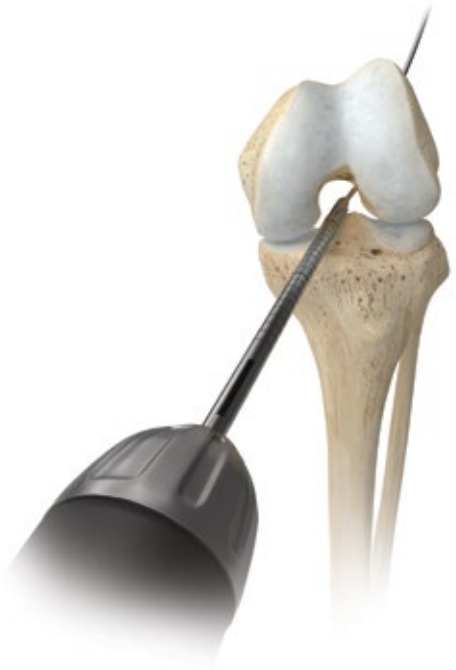

Figure 9

Femoral Tunnel Length

Measure the length of the femoral tunnel by sliding the Precision Depth Gauge down the Nitinol guide wire through the skin and subcutaneous tissues at the lateral thigh until contacting the femoral cortical bone. Read the tunnel length from the tip of the Nitinol guide wire (Figure 8).

Note: A minor skin incision may be required to facilitate passing of the depth gauge to the surface of the bone.

Once the femoral tunnel length measurement is determined, remove the Precision Curved Femoral Guide from the knee. Use controlled effort when removing the Precision Femoral Guide due to friction between the Nitinol guide wire and the curved section of the femoral guide. Care should be taken to avoid pulling on the release mechanism on the green handle as the guide may disengage.

Drill over the guide wire with a Precision Flexible Reamer corresponding to the diameter of the graft (Figure 9).

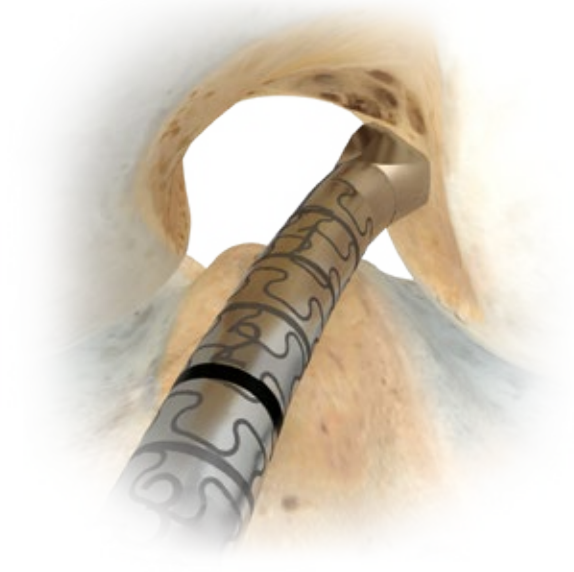

Figure 10

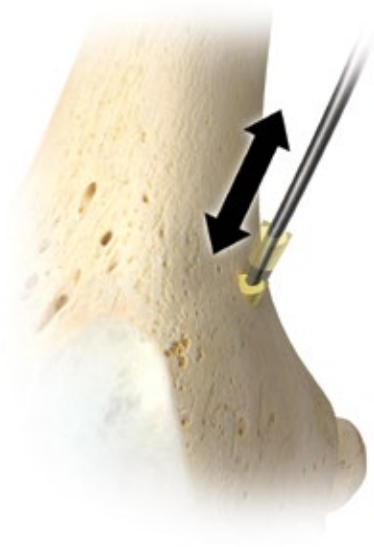

Figure 11

Femoral Tunnel Length (cont.)

Advance the Precision Flexible Reamer to the desired socket depth, leaving at least 10 mm between the end of the femoral tunnel and the lateral cortex for use with the ToggleLoc™ Femoral Fixation Device. Note that the bold radial etch mark on the Precision Flexible Reamer represents 25 mm depth (Figure 10).

Use the 4.5 mm Precision Flexible Reamer to ream over the Nitinol guide wire, perforating the lateral cortex of the femur. Pass the 4.5 mm reamer through the cortex two to three times to facilitate passage of the ToggleLoc device (Figure 11).

Figure 12

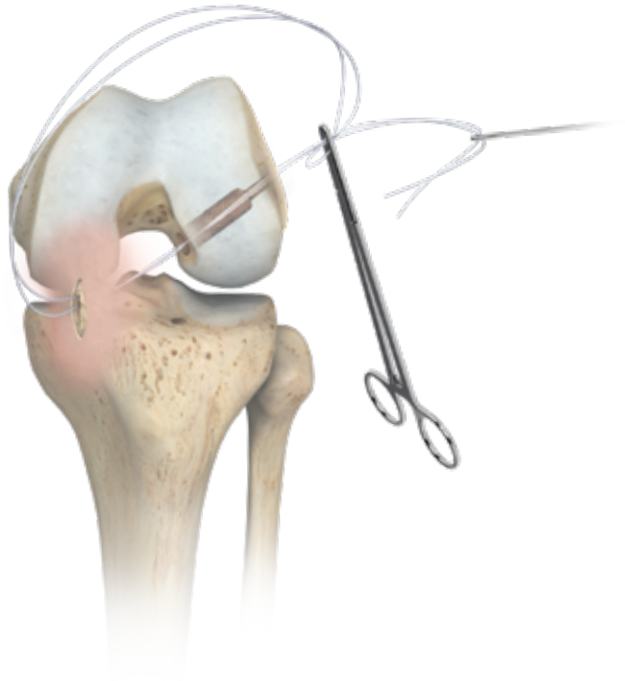

Figure 13

Prepare the Relay Stitch

Thread the free ends of a #2 MaxBraid™ suture through the eyelet of the Nitinol guide wire (Figure 12).

Pull proximally on the Nitinol guide wire to place the relay suture into the joint space and through the femoral tunnel. Using a hemostat, clamp the loop end of the relay stitch exiting the medial portal to the free ends of the relay stitch existing the skin on the lateral thigh (Figure 13).

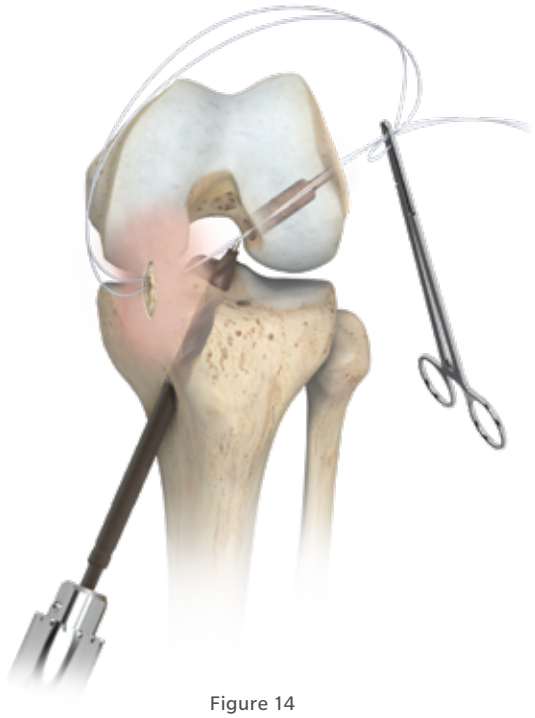

Figure 14

Tibial Tunnel Preparation

Position a tibial guide that allows for optimal tunnel placement at the tibial ACL footprint and advance under power the 2.4 mm guide wire intra-articularly. Ream over the guide wire with the drill corresponding to the previously determined graft size (Figure 14).

Femoral Fixation

Depending upon preference with regard to tensioning direction at the femoral tunnel, reference the ToggleLoc Device with ZipLoop™ Inline technique for zip strands to exit through the lateral femoral cortex (0385.1-GLBL-en) or reference the ToggleLoc Device with ZipLoop technique for zipping strands to exit distally through the tibial tunnel or medial portal (0384.2-GLBL-en).

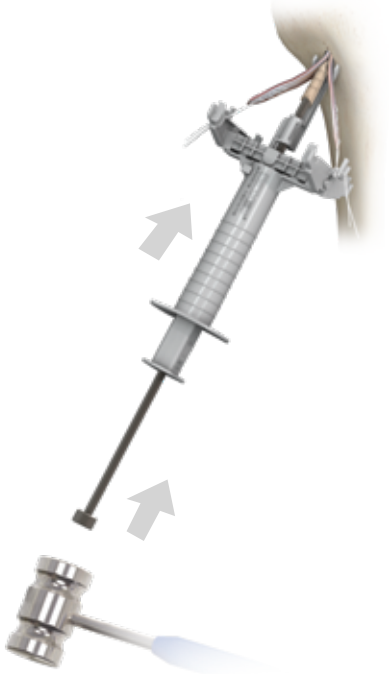

Figure 15

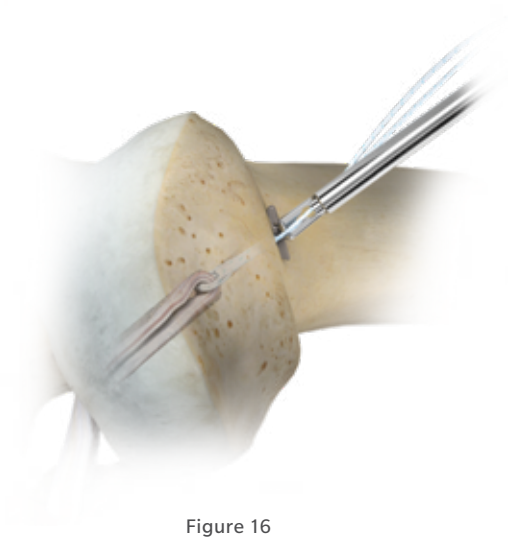

Figure 16

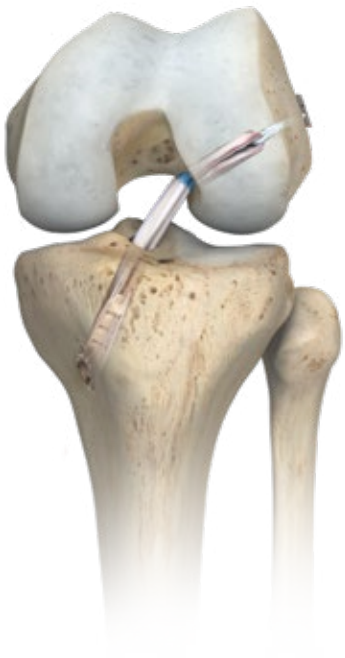

Figure 17

Tibial Fixation

Reference the TunneLoc® Tibial Fixation surgical technique for tibial fixation (0387.1-GLBL-en) (Figure 15).

Sever the Zip Suture

Once tibial fixation is complete pass the limbs of the zip strand through the key shaped hole in the Super MaxCutter™ instrument. Advance the Super MaxCutter device through the medial portal and cut the suture at the entrance of the femoral tunnel in the joint space (Figure 16). Fixation is complete (Figure 17).

Ordering Information

Implants

Part Number	Size	Description
110005087	–	ToggleLoc Device with ZipLoop Inline
110005090	–	ToggleLoc XL with ZipLoop Inline
110005089	–	ToggleLoc XL with ZipLoop
906512	8 mm	TunneLoc with Pre-loaded implant
906513	9 mm	TunneLoc with Pre-loaded implant
906514	10 mm	TunneLoc with Pre-loaded implant
906515	11 mm	TunneLoc with Pre-loaded implant

Instrumentation

Part Number	Size	Description
110004180	4.5 mm	Precision Disposable Flexible Reamers
110004185	7.0 mm	
110010577	7.5 mm	
110004186	8.0 mm	
110010578	8.5 mm	
110004187	9.0 mm	
110010579	9.5 mm	
110004188	10.0 mm	
110010580	10.5 mm	
110004189	11.0 mm	
110010581	11.5 mm	
110004190	12.0 mm	
110010621	5-6 mm	Precision Curved Femoral Aimer – Left
110004074	7-8 mm	
110004075	9-10 mm	
110004076	11-12 mm	
110004080	Universal	
110010622	5-6 mm	Precision Curved Femoral Aimer – Right
110004077	7-8 mm	
110004078	9-10 mm	
110004079	11-12 mm	
110004081	Universal	
110009768	–	Precision Depth Gauge
110010813	–	Precision Graft Sizing Block

Ordering Information (cont.)

Instrumentation (cont.)

Part Number	Size	Description
110004073	–	Precision Curved Aimer Handle
909511	–	Point & Shoot Tibial Guide
110010399	–	Point to Point Tibial Guide
110010400	–	Point to Hole Tibial Guide
110003463	–	10-Pack White Suture
110003540	–	Single White
110003464	–	10-Pack Blue/White Suture
110003539	–	Single Blue/White
110004136	–	ACL Kit
909507	–	Coronal Alignment Pin
904794	–	ZipLoop Puller
110003541	–	Cannulated Bone Plug 5pk
110009769	–	Flexible Nitinol Wire-Single
110008343	–	Flexible Nitinol Wire-5pk

Precision Flexible Reaming Instrumentation

INDICATIONS FOR USE

The Precision ACL Instrumentation are non-powered, hand-held, or hand-manipulated devices, intended to be used in various general surgical procedures and are intended for medical purposes to manipulate tissue, or for use with other devices in orthopedic surgery.

TunneLoc Tibial Fixation Device

INDICATIONS FOR USE

To provide fixation of soft-tissue grafts within the tibial tunnel during anterior cruciate ligament (ACL) and/or posterior cruciate ligament (PCL) reconstruction.

CONTRAINDICATIONS

1. Active infection.
2. Patients with mental or neurologic conditions who are unwilling or incapable of following postoperative care instructions.
3. Patient conditions including: blood supply limitations, insufficient quantity or quality of bone for attachment or latent infections.
4. Pathologic soft tissue conditions, which would prevent secure fixations.

ToggleLoc System

INDICATIONS FOR USE

The ToggleLoc System devices, except the ToggleLoc XL device, are intended for soft tissue to bone fixation for the following indications:

Shoulder

Bankart lesion repair
SLAP lesion repairs
Acromio-clavicular repair
Capsular shift/capsulolabral reconstruction
Deltoid repair
Rotator cuff tear repair
Biceps Tenodesis

Foot and Ankle

Medial/lateral repair and reconstruction
Mid- and forefoot repair
Hallux valgus reconstruction
Metatarsal ligament/tendon repair or reconstruction
Achilles tendon repair
Ankle Syndesmosis fixation (Syndesmosis disruptions) and as an adjunct in connection with trauma hardware for Weber B and C ankle fractures **(only for ToggleLoc with Tophat/ZipTight™ Fixation Devices)**

Elbow

Ulnar or radial collateral ligament reconstruction
Lateral epicondylitis repair
Biceps tendon reattachment

Knee

ACL/PCL repair / reconstruction
ACL/PCL patellar bone-tendon-bone grafts
Double-Tunnel ACL reconstruction
Extracapsular repair: MCL, LCL, and posterior oblique ligament
Illiotibial band tenodesis
Patellar tendon repair
VMO advancement
Joint capsule closure

Hand and Wrist

Collateral ligament repair
Scapholunate ligament reconstruction
Tendon transfers in phalanx
Volar plate reconstruction

The ToggleLoc XL device is used for fixation of tendons and ligaments in cases of unanticipated intraoperative complications such as cortical breaching during orthopedic reconstruction procedures, such as Anterior Cruciate (ACL) or Posterior Cruciate (PCL) Reconstruction.

CONTRAINDICATIONS

1. Infection.
2. Patient conditions including blood supply limitations, and insufficient quantity or quality of bone or soft tissue.
3. Patients with mental or neurologic conditions who are unwilling or incapable of following postoperative care instructions.
4. Foreign body sensitivity. Where material sensitivity is suspected, testing is to be completed prior to implantation of the device.

Notes

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Check for country product clearances and reference product specific instructions for use. Zimmer Biomet does not practice medicine. This technique was developed in conjunction with health care professional. This document is intended for surgeons and is not intended for laypersons. 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. Caution: Federal (USA) law restricts this device to sale by or on the order of a surgeon. Rx only.

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CE 2797

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