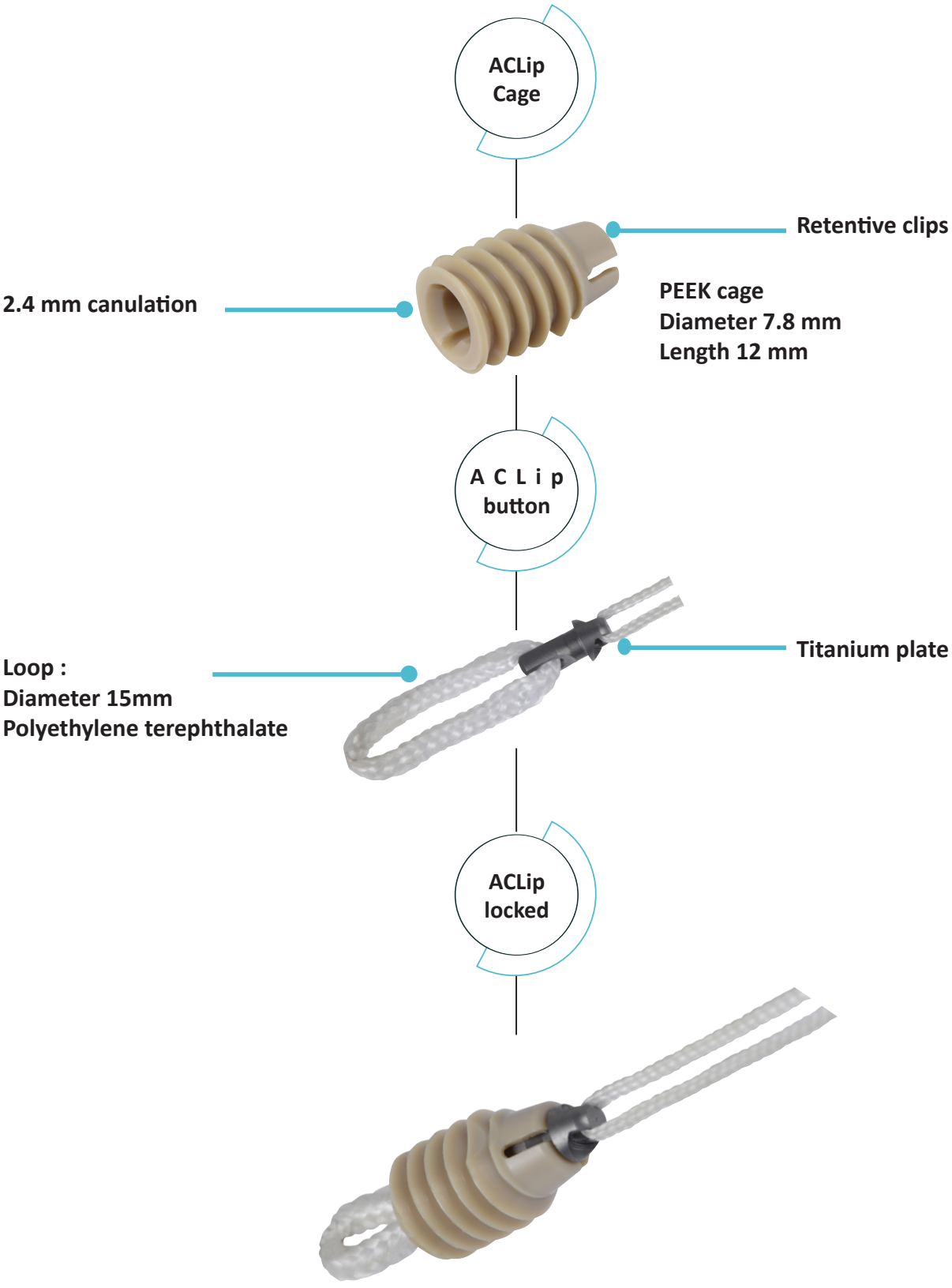
ACLip

amplitude

Surgical technique
ACLip All-Inside

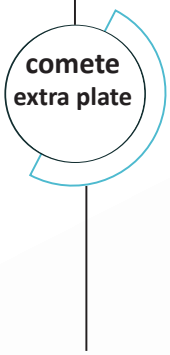
Summary

Concept and range



Concept and range

Adjustable cortical fixation



Extra plate for 6-11 mm tunnel

Concept and range

Adjustable cortical fixation

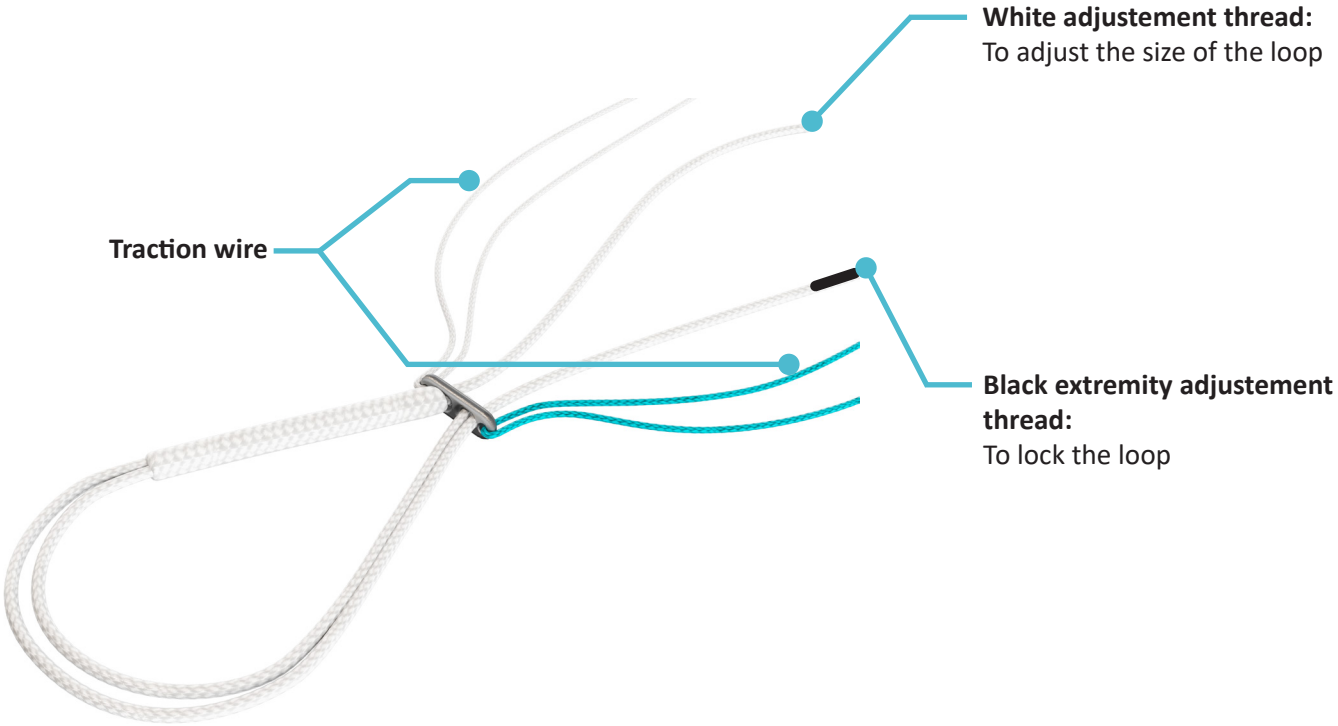


Plate for 6 to 11 mm tunnel

Concept and range

comete control

- Comete control is made of a green and a white traction wire.
To pass the comete control plate through the tunnel, tract the white or the green traction wires. Pull the other traction wire and adjustment threads without applying tension.

- Comete control two adjustment threads:
  - White adjutable thread to adjust the loop.
  - Black adjustable thread to lock the loop.

- To adjust the loop: start pull the white adjustment thread and pull the same lenght gently with the black extremity. Repeat this process until adjust the loop to the desired length.

- Do not force on the locking thread (black extremity) during the loop adjustment time.

- Lock the comete control: Hold a tension on the white adjustable thread and pull tightly the black adjustment thread to lock the loop.

Implant comete extra plate

- Dimension:

Length	20 mm
Width	7 mm
Thickness	1.50 mm

Implant comete control and extra plate

- Remove one of the two traction wires. Slide the extra plate under the button. Make sure that the remaining traction wire is on the slot side to avoid hindering the interlocking.

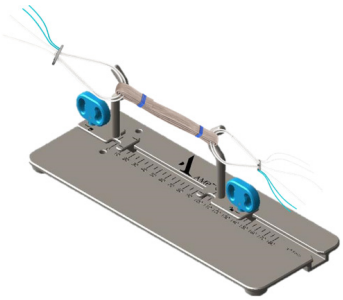
NOTE

This document is aimed to have a correct use of instrumentation set. Anatomical access and surgical technique are under responsibility of surgeon.

Surgical Technique Overview

1

Graft preparation

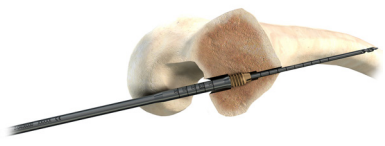


2

Femoral socket drilling

3

ACLip cage screwing



4

Tibial tunnel location

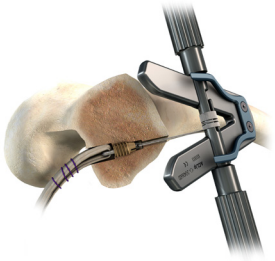
Surgical Technique Overview

1

Tibial tunnel drilling

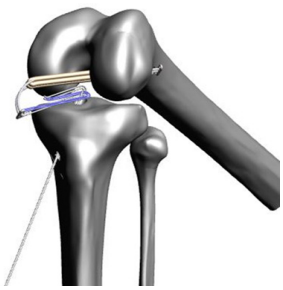
2

ACLip clipping



3

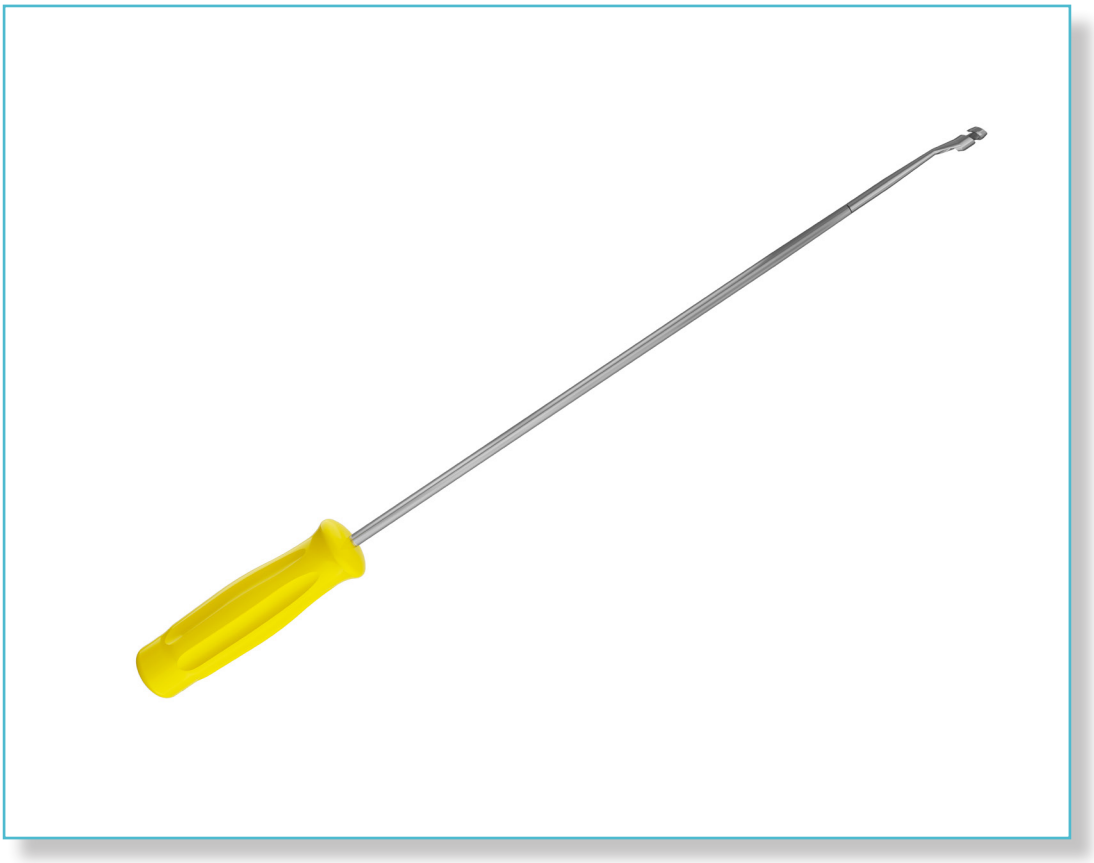
Tibial graft passing



4

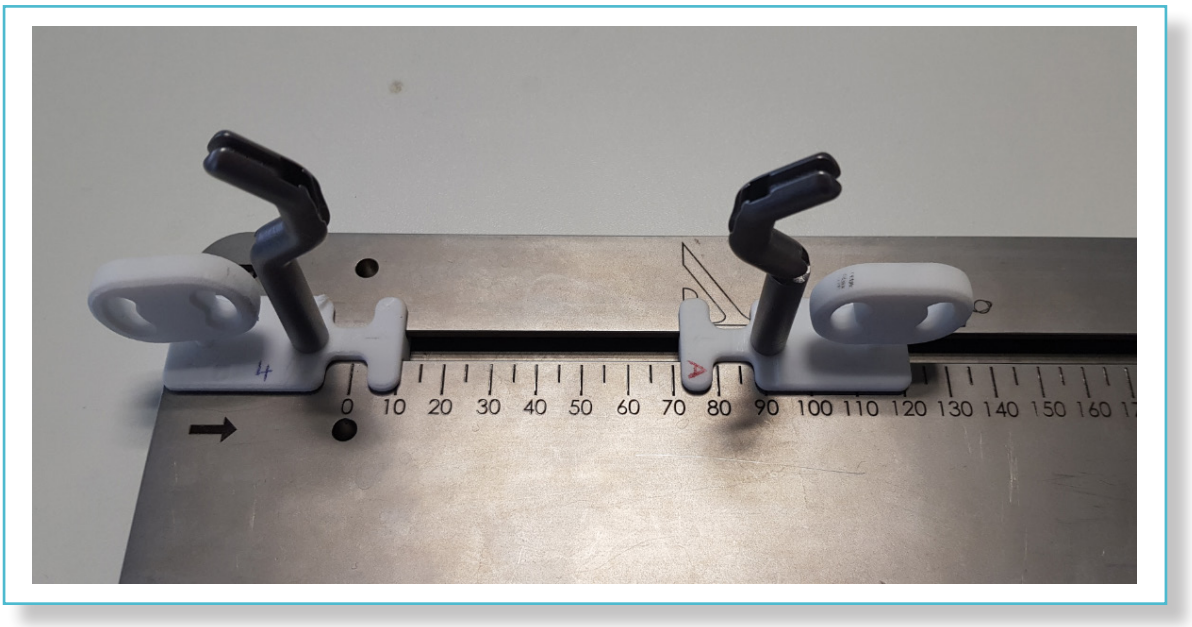
Tibial side fixation

1 Graft harvesting



Harvest the semitendinosus.

2 Graft preparation



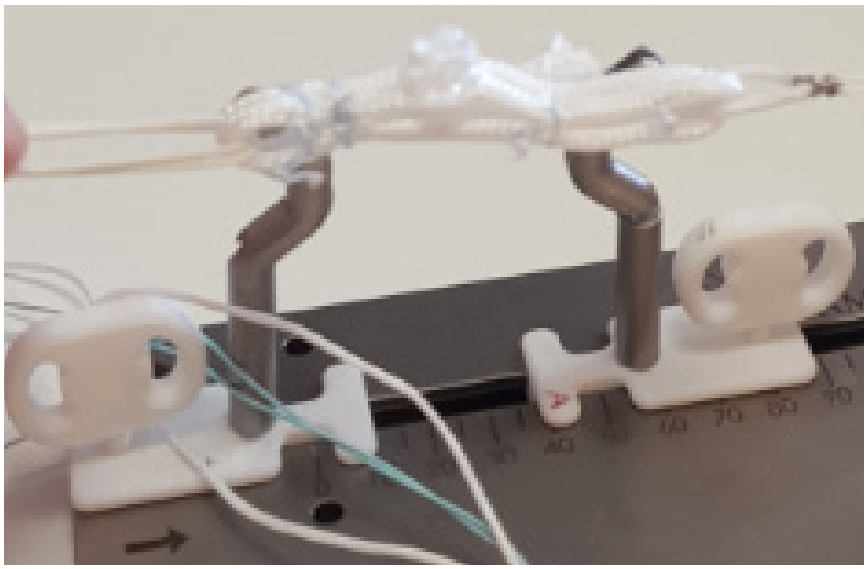
Match the A mark of a support for graft station to the 0 of the graft station.

Match the A mark of the other support for graft station to the graft length minus 10 mm. For a 55mm graft length place the support on the 45 mark.

Place the plate of the ACLip button in the slot of the support for graft station. Place the loop of the comete control in the slot of the second support for graft station.

Prepare a 7 to 11 mm diametre graft as usual.

3 Calibration



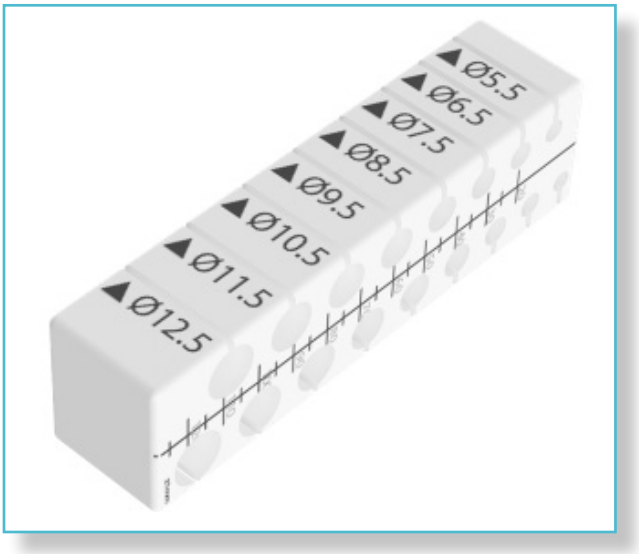
Once the graft preparation is complete, remove the graft from the supports:

1 Unlock the adjustable supports

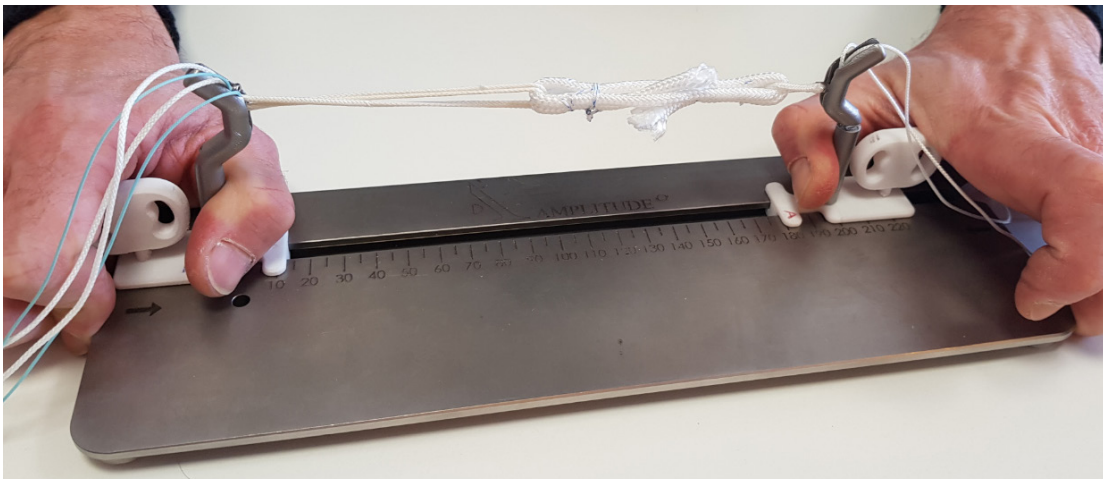
2 Bring them closer together

3 Remove the graft from the supports

Calibrate the graft diameter and check the length.



4 Graft tensioning



Load the ACLip button into the slot of the support for graft station.

Load the comete control plate into the slot of the second support for graft station.

Apply a light tension and put a compress onto the graft.

5 Femoral tunnel placement

Select the appropriate offset: 1 mm more than the graft radius.

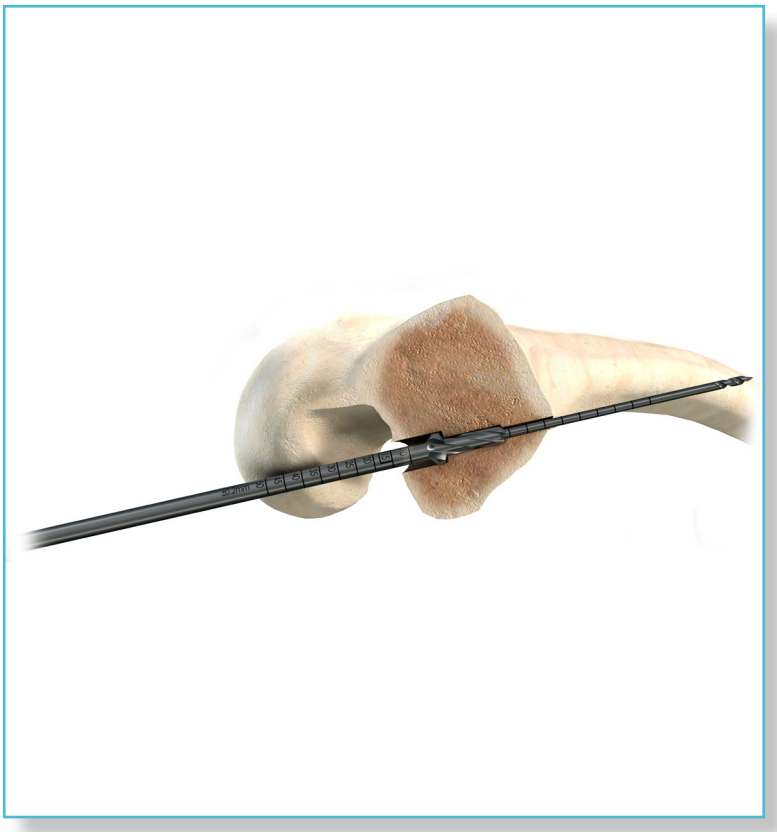
Place the hook of the femoral guide in the over the top position.

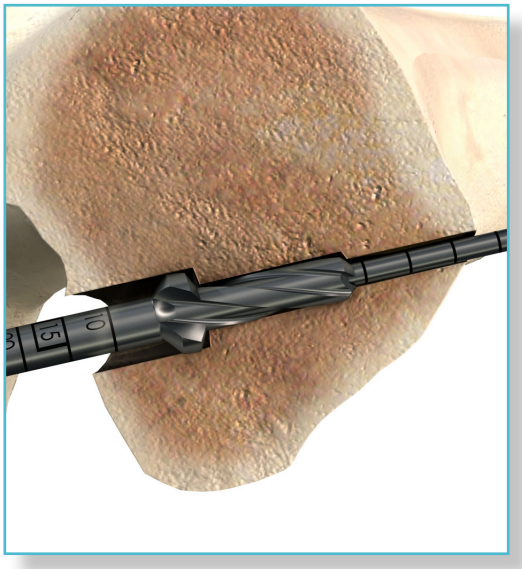
Place the eyelet pin through the femoral guide untill it passes the lateral cortex.

The graduated eyelet pin is used to measure the total length of the femoral trajectory (or between the medial and lateral cortexes) by measuring the graduation of the pin in contact with the medial cortex.

Remove the femoral aimer.

6 Femoral tunnel drilling





Select the stepped reamer corresponding to the graft diameter and place it over the eyelet pin.
The graduations on the stepped reamer correspond to the length of the graft tunnel.
Drill a femoral socket of the appropriate depth and then remove the reamer while leaving the eyelet pin.
The total length of these 2 femoral tunnels is: the femoral tunnel dedicated for the graft length plus 17 mm (the 5 mm diameter femoral tunnel dedicated for the ACLip cage).

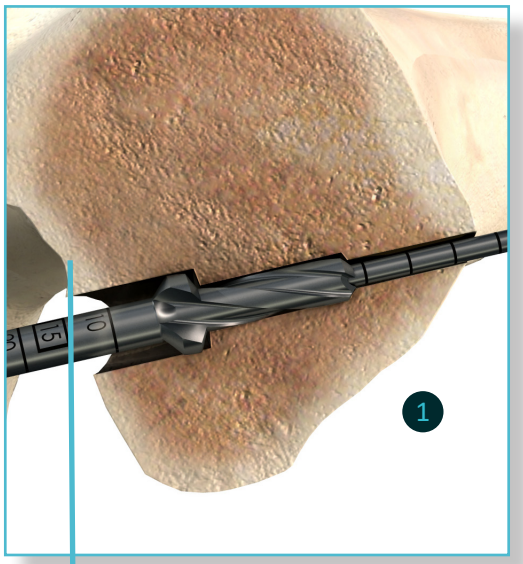
Exemple :
Graft tunnel = 15mm.
The total legnth of the two tunnels 15mm+17mm=32mm. the distance cortex to cortex must be at minimum 32mm.
For a 20mm graft tunnel, the distance cortex to cortex must be at minimum 37mm.

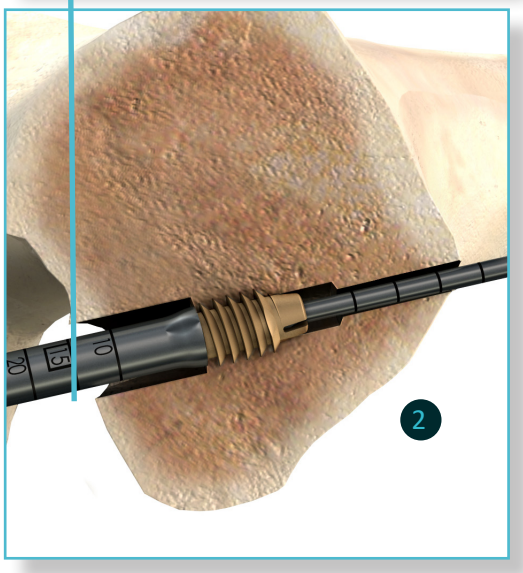
Maintain the guide pin's axis
- during reaming to avoid bending the pin.
- when removing the stepped reamer to prevent widening the tunnel intended for the cage

Key factor

At the end of the drilling procedure, take a landmark on the lateral side of the condyle to locate the drilling depth graduation on the reamer. This mark will be used for the cage introducer to reproduce the screwing and drilling depth.

7 ACLip cage screwing





Place the ACLip cage on the Shank introducer ACLip cage Trinkle or on ACLip cage introducer.
Place the Shank introducer ACLip cage Trinkle or on ACLip cage introducer over the eyelet pin.

Screw the ACLip cage. The screwing depth graduation(2) must be the same as the graduation shown on the stepped reamer when the tunnel was drilled(1).

Screw on the ACLip cage while keeping the eyelet pin axis, in order not to apply excessive lever arm between the tip of the introducer and the eyelet pin.
Applying a lever arm creates stress between the eyelet pin and the tip of the cage introducer, which may weaken the introducer tip.
In case of dense bone, use the AClip cage starter or the shank starter ACLip cage Trinkle to prepare the screwing.

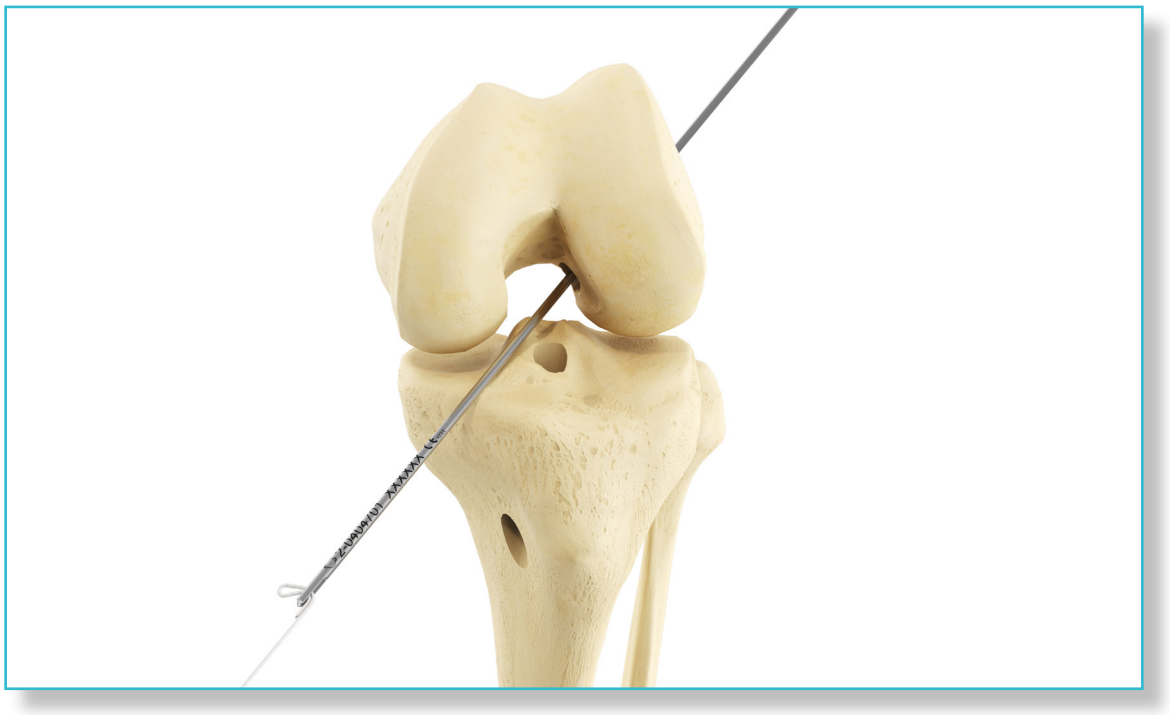
Remove the cage introducer while maintaining the eyelet pin

Key factor

When screwing in, keep the mark on the lateral side of the condyl and graduation used for drilling.

Keeping the drilling depth and screwing depth guarantees the right positioning on the cage that ensures clipping and mechanical properties.

8 Suture loop passing



Pass a suture loop through the eyelet pin and pull the eyelet pin while holding the loop to the antero medial arthroscopic portal.

9 Tibial tunnel placement

Assemble the tibial guide and select the desired angulation.

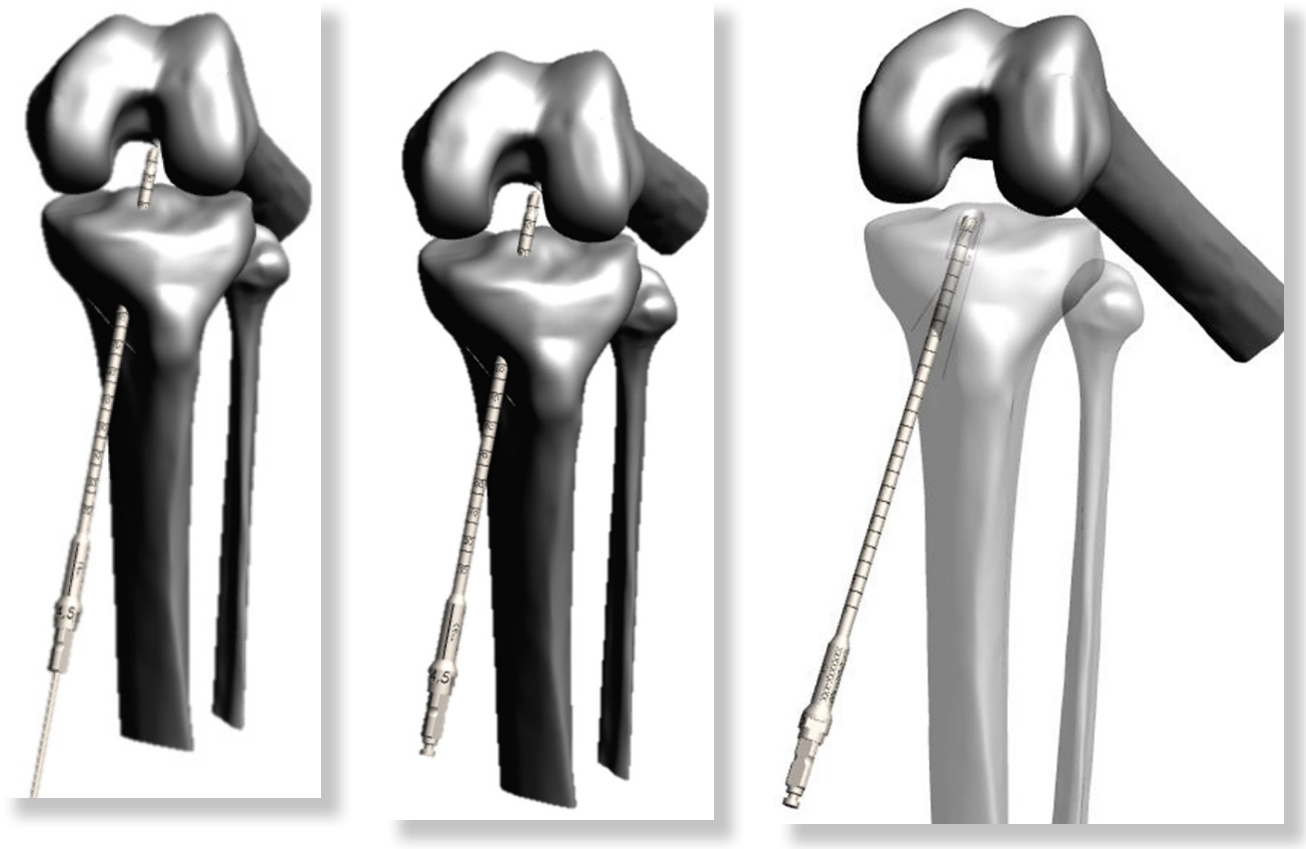
Insert the tibial guide through the medial portal. Then, place the tip of the modular tibial aimer on the ACL footprint.
The laser mark indicates the exit point of the wire pin guide.

Insert the tibial guide sleeve, flat surface facing upward without forcing until you hear a single « click » after the contact with the cortex.

Drill the wire pin guide through the modular tibial guide sleeve.

Check the wire pin guide position, remove the tibial guide from the joint.

10 Tibial tunnel drilling



Slide the retro drill reamer over the pin guide.

Drill a tunnel from outside to inside. The head of the retrodrill reamer has to exit from the bone to allow the retro drill blade to exit in intra articular.
remove the pin guide from the retrodrill reamer

Put the retro drill blade in the retro drill reamer. Position the retro drill blade at 2 hours or 10 hours depending to left or right knee.
Impact the retro drill blade through the retro drill reamer with a hammer until the blade exits entirely from the tunnel. The blade must be in contact with the head of the retro drill reamer
Place the retro drill blade in contact with the cortex, then, note the graduation on the tibial side. Push the blade back so that it can make a full turn without contacting the cortex.

Place the power tool on the retro drill reamer. **Run the power tool before the blade makes contact with the cortex.**
Drill the tibial socket to the desired length.

Note

Tunnel is 15 mm once the retrograde reamer head is fully seated.

11 Retro drill blade removing

Put the retro drill reamer head in the joint.

Place the retro drill blade in the same orientation as during impaction.

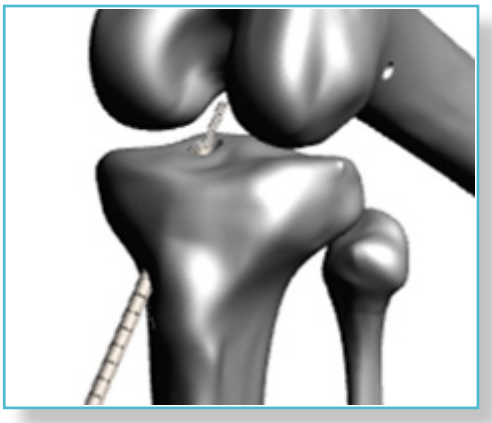
Place the extractor on the extraction area of the retro drill blade.

Remove the retro drill blade with a hammer.

Note

Never place your hand on the reamer during blade removal to prevent any risk of injury.

12 Suture loop passing



Load the wire on the fork of the wire inserter.

Pass the wire inserter and the wire through the retro drill reamer untill the wire loop exit in the joint.

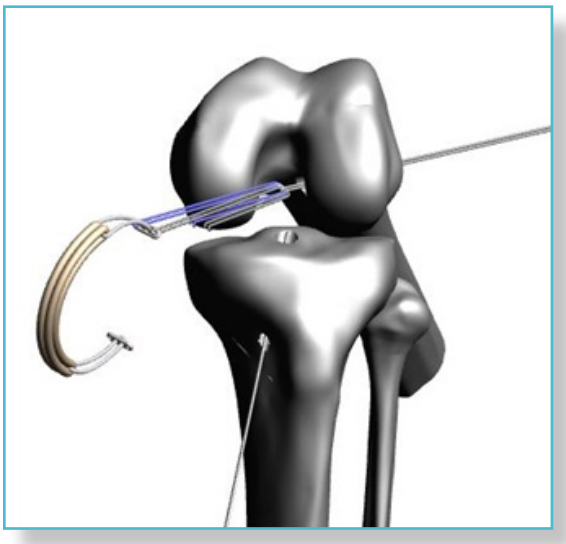
Retrieve the loop through the medial portal with a pliers.

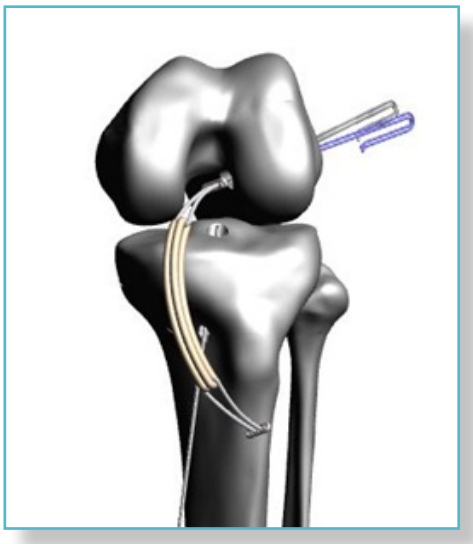
Remove the retro drill reamer.

Note

Use a different colour suture than the one used on the femoral side.

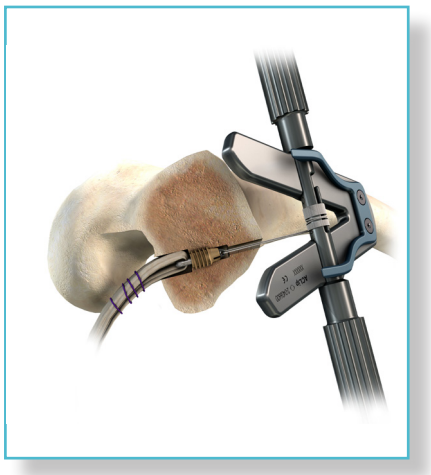
13 ACLip clipping





Assemble the tie rod and support.

Place the ACLip traction wire in the suture loop.
Pull the traction wire until the ACLip traction wire exit from the femur.
Pull the ACLip traction wire at the femoral level until the ACLip button stops against the ACLip cage.

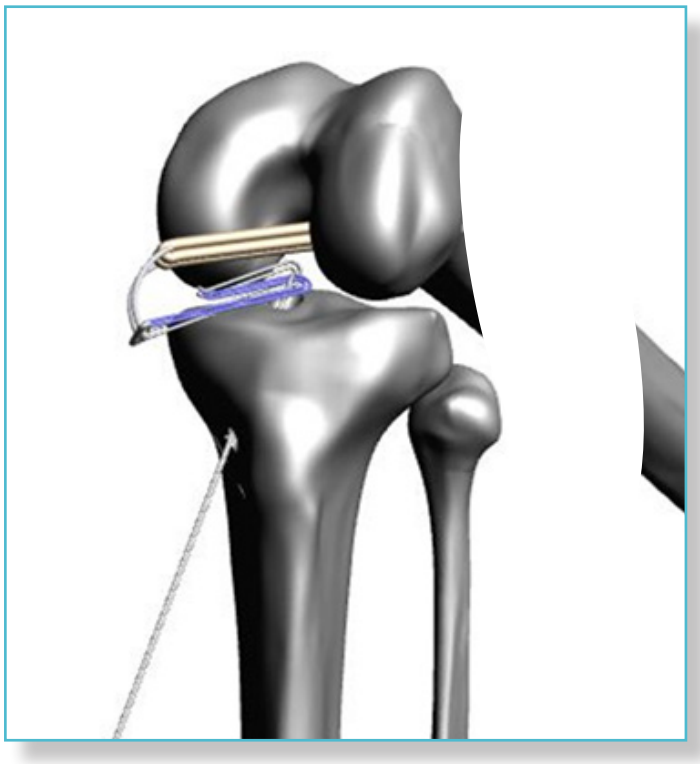


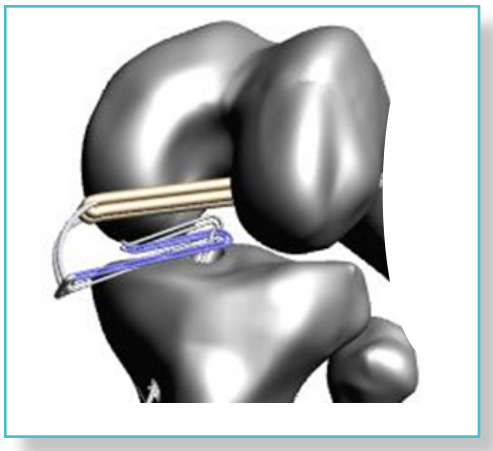
Place the ACLip traction wires on the slide of the tie rod.
Position the clipping system on the patient's leg where the traction wire exit.
Tighten the traction wires then turn the tie rod until the ACLip clipping.

Verify locking by pulling the graft via the arthroscopic portal

14 Graft positioning

Tibial positioning





Place the comete control traction wire and threads dedicated to the tibial fixation in the tibial suture loop.

Pull suture at the tibial level until the comete control threads and wires exit to the tibial side.

Pull comete control traction wires applying a tension on the white or the green wire (white wire for example). Do not force on the adjustable and locking thread.

When the titanium plate pass the distal cortex, pull the second traction wire (green wire for example).

This action allow to put the plate perpendicular to the tibial cortex.
Adjust the tibial fixation by alternately pulling on the white and black wires until the plate is in contact with the cortex.

The plate must remain perpendicular to the cortex so that it cannot pass through the tibial tunnel. You could hold the titanium plate with pliers to ensure this.

15 Tibial graft fixation

Adjust the graft tension. Begin to pull the white adjustment thread and pull the same length with the black thread.
Reproduce the mouvement until adjust the graft to the desired tension.

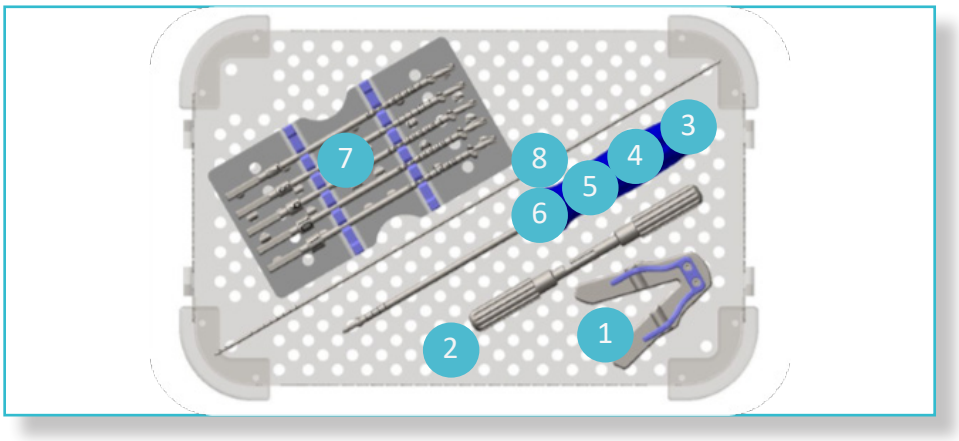
Do not apply a tension on the black adjustment thread during the loop adjustment time.

Control the graft tensionning.

Cut the adjustment threads on the tibia at a minimum distance of 10mm from the cortical button

Instrumentations

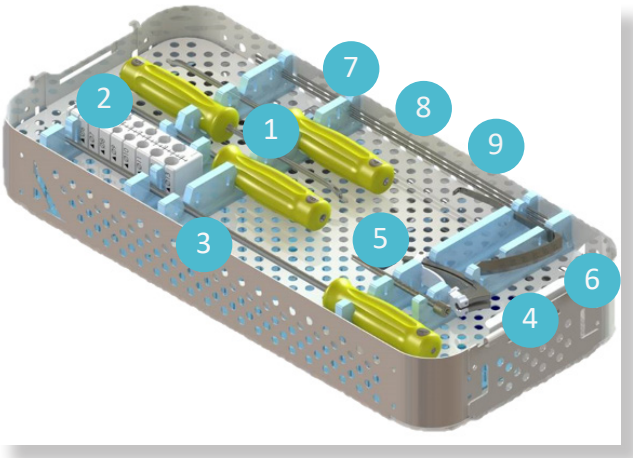
ACLip instrumentation

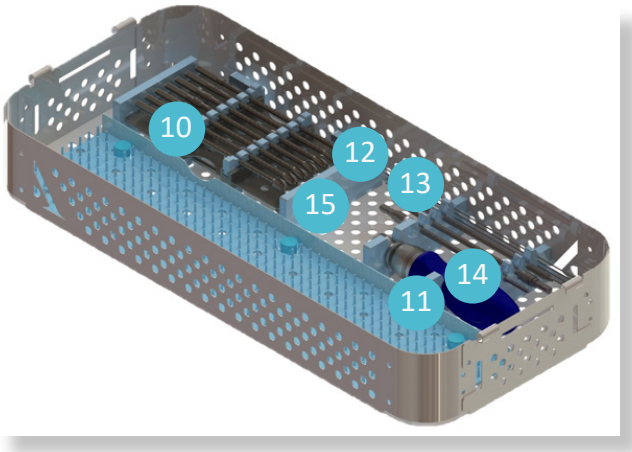


Rep	Designation	Reference	Qty
1	Tensile support	2-0406600	1
2	Tie rod	2-0408000	1
3	ACLip cage Introducer	2-0406000	1
	or	-	-
4	Shank introducer ACLip cage Trinkle	2-0407200	1
5	Starter ACLip cage	2-0408600	1
	or	-	-
6	Shank starter ACLip cage Trinkle	2-0408610	1
	Stepped reamer Ø5xØ7 mm	2-0406530	1
	Stepped reamer Ø5xØ7.5 mm	2-0406535	1
	Stepped reamer Ø5xØ8 mm	2-0406540	1
	Stepped reamer Ø5xØ8.5 mm	2-0406545	1
7	Stepped reamer Ø5xØ9 mm	2-0406550	1
	Stepped reamer Ø5xØ9.5 mm	2-0406555	1
	Stepped reamer Ø5xØ10 mm	2-0406560	1
	Stepped reamer Ø5xØ10.5 mm	2-0406565	1
	Stepped reamer Ø5xØ11 mm	2-0406570	1
8	ACLip eyelet pin	2-0404701	2

Instrumentation

Inside-Out modular instrumentation set





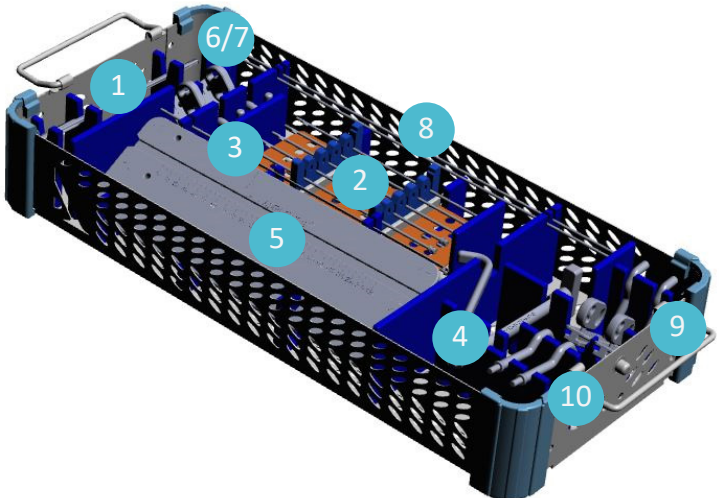
Rep	Designation	Reference	Qty
1	5 mm IN/OUT femoral guide	2-0405305	1
	6 mm IN/OUT femoral guide	2-0405306	1
	7 mm IN/OUT femoral guide	2-0405307	1
2	Graft sizer	2-0401800	1
3	Open stripper Ø5 mm	2-0405505	1
4	Modular guide body / handle	2-0404800	1
5	Modular tibial guide sleeve	2-0404900	1
6	Modular tibial aimer	2-0405000	1
7	Threaded graduated Eyelet pin Ø2.4mm Lg350mm	2-0404700	1
8	Trocard eyelet pin Ø2.4 mm Lg 350mm	2-0405400	1
9	Wire pin guide Ø2.4mm Lg300mm	2-0405600	1
10	Reamer Ø 5.0 mm	2-0405210	1
	Reamer Ø 5.5 mm	2-0405215	1
	Reamer Ø 6.0 mm	2-0405220	1
	Reamer Ø 6.5 mm	2-0405225	1
	Reamer Ø 7.0 mm	2-0405230	1
	Reamer Ø 7.5 mm	2-0405235	1
	Reamer Ø 8.0 mm	2-0405240	1
	Reamer Ø 8.5 mm	2-0405245	1
	Reamer Ø 9.0 mm	2-0405250	1
	Reamer Ø 9.5 mm	2-0405255	1
	Reamer Ø 10.0 mm	2-0405260	1
	Reamer Ø 11.0 mm	2-0405270	1
11	Ratcheting handle	2-0406400	1
12	Screw guidewire Ø 1.1 mm length 240 mm	2-0405700	1
13	Nitinol guide wire diameter 1.1 mm - length 300 mm	15INBR001F10	1
14	Shank screwdriver ECLIPSE Ø7-12 mm Trinkle or Shank screwdriver ECLIPSE® BCP / Profil	2-0409300 2-0406200	1
15	Shank starter Ø 7mm	2-0406300	1

Instrumentation

Rep	Designation	Reference	Qty
10	Short reamer Ø 5.0 mm	2-0406710	1
	Short reamer Ø 5.5 mm	2-0406715	1
	Short reamer Ø 6.0 mm	2-0406720	1
	Short reamer Ø 6.5 mm	2-0406725	1
	Short reamer Ø 7.0 mm	2-0406730	1
	Short reamer Ø 7.5 mm	2-0406735	1
	Short reamer Ø 8.0 mm	2-0406740	1
	Short reamer Ø 8.5 mm	2-0406745	1
	Short reamer Ø 9.0 mm	2-0406750	1
	Short reamer Ø 9.5 mm	2-0406755	1
	Short reamer Ø 10 mm	2-0406760	1
	Short reamer Ø 11 mm	2-0406770	1
15	Screwdriver diameter 7 -12 mm	16INTO001	1
15	Starter tap	11INTA001	1

Instrumentation

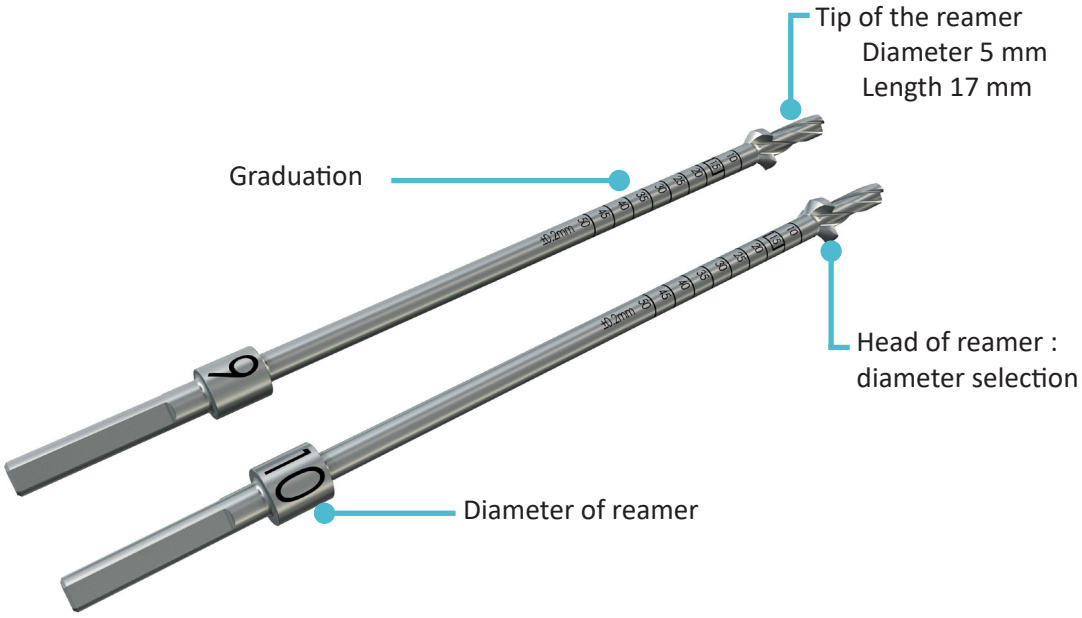
All-Inside optional instrumentation



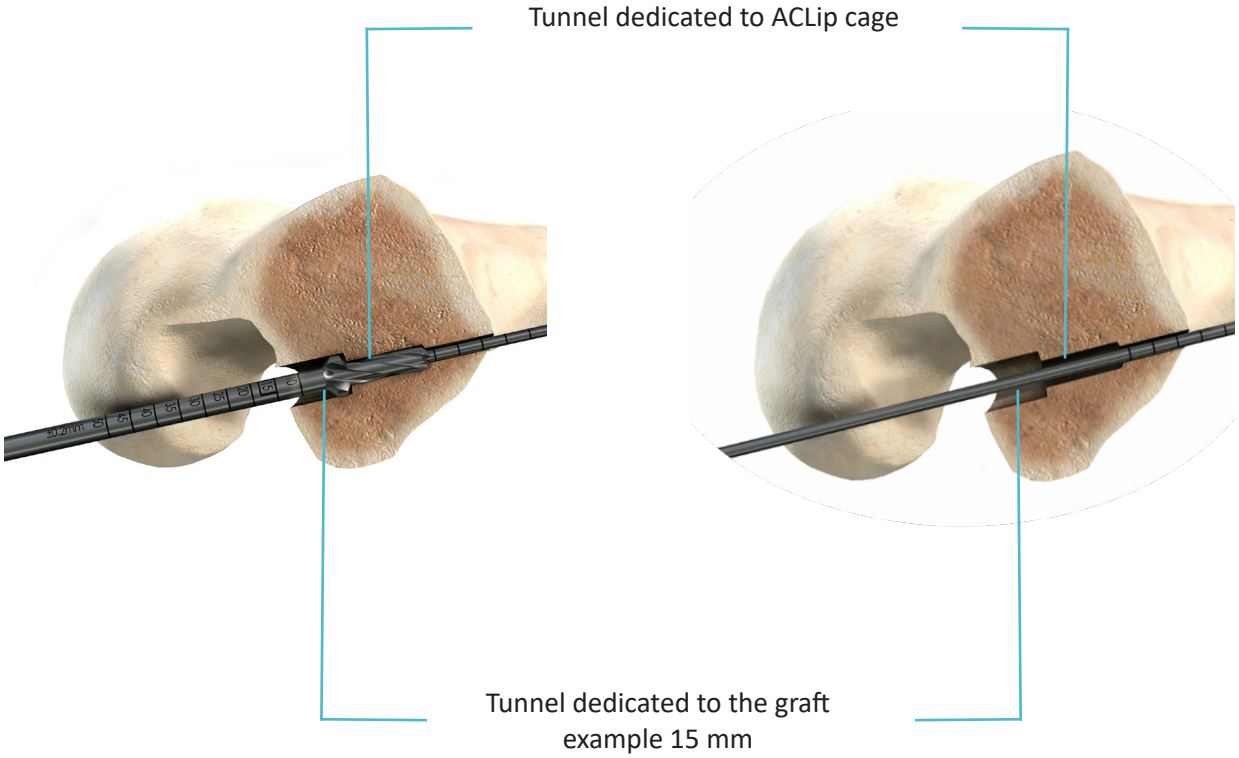
Rep	Designation	Reference	Qty
1	Retro drilling reamer	2-0407400	1
2	Retro drilling blade Ø 6mm	2-0407320	1
	Retro drilling blade Ø 6.5mm	2-0407325	
	Retro drilling blade Ø 7mm	2-0407330	
	Retro drilling blade Ø 7.5mm	2-0407335	
	Retro drilling blade Ø 8mm	2-0407340	
	Retro drilling blade Ø 8.5mm	2-0407345	
	Retro drilling blade Ø 9mm	2-0407350	
	Retro drilling blade Ø 9.5mm	2-0407355	
	Retro drilling blade Ø 10mm	2-0407360	
	Retro drilling blade Ø 10.5mm	2-0407365	
	Retro drilling blade Ø 11mm	2-0407370	
3	Wire inserter	2-0408200	1
4	Specific pin extractor	8-0202700	1
5	Graft station	2-0407700	1
6	Adjustable support	2-0407800	2
or			
7	Support for graft station	2-0409400	2
8	Trocard eyelet pin Ø2.4mm lg 400mm	2-0409000	1
9	Adjustable support +50mm	2-0407900	2
10	Fixed support	2-0408100	2

Appendix A

Stepped reamer

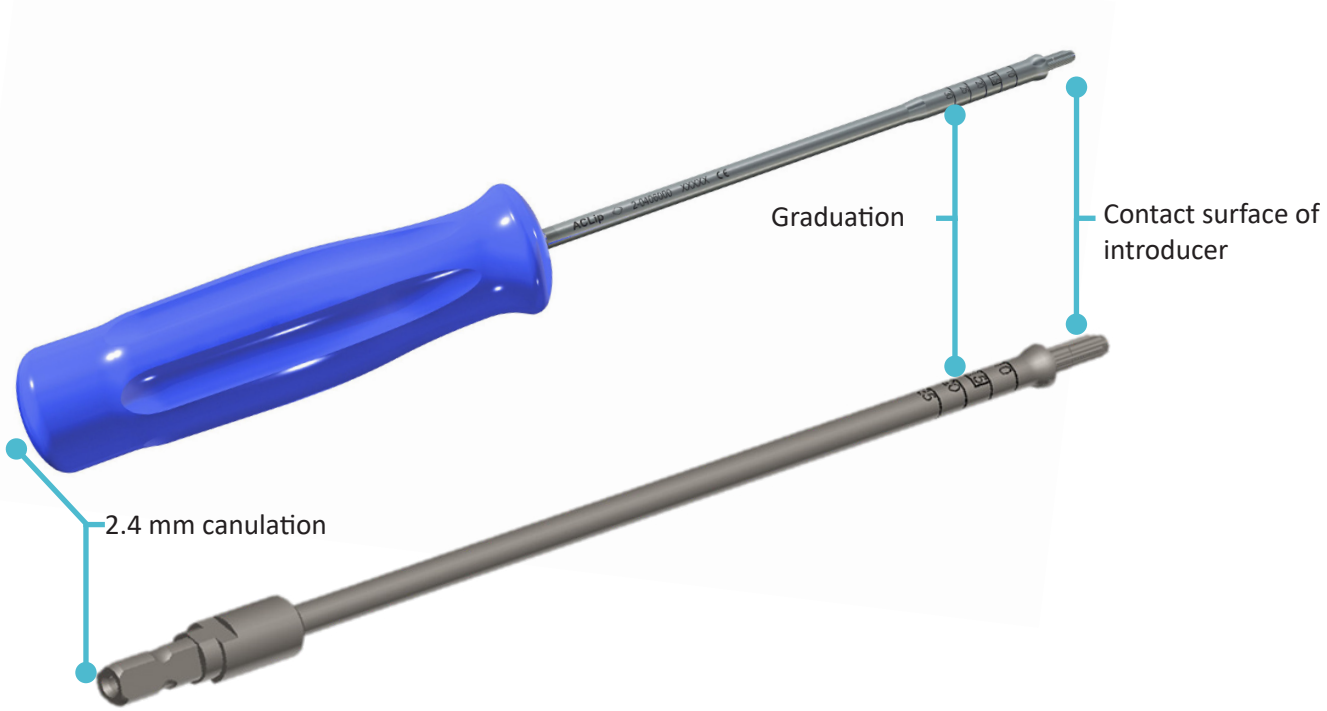


The initial stepped of the reamer is 5 mm diameter and 17 mm length to prepare the socket for the ACLip cage.
The second stepped of the reamer corresponds to graft and length diameter:
Available sizes: 7 / 7.5 / 8 / 8.5 / 9 / 9.5 / 10 / 10.5 /11 mm.
The graduations indicate the depth of the graft tunnel.



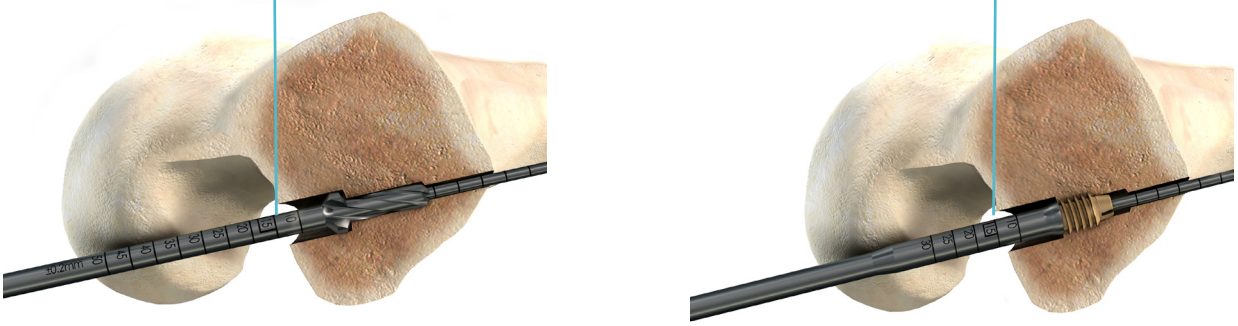
Appendix B

Introducer and shank introducer ACLip cage



2.4 mm canulation for screw fixation over eyelet pin.
Graduations match graduations on reamer.

The ACLip cage is screwed into the bone with the same graduation as used for the stepped reamer.
Example: 15 mm screw depth



Appendix C

Tensile support and tie rod

Tie rod

Tensile support

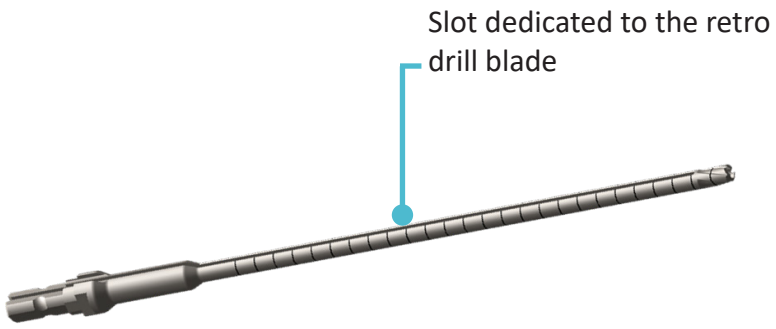
Assembled clipping system

Appendix D

Retro drill

Retro drill reamer

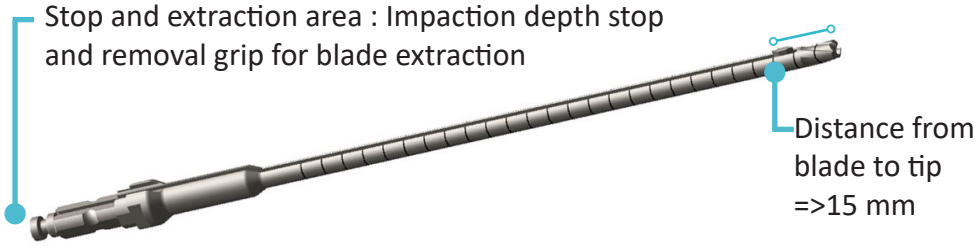
2.4 mm canulation
4.5 mm diameter



Retro drill blade

Size and alf size
Diameter 6 to 11 mm

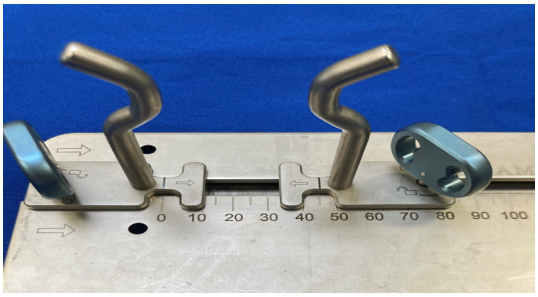
Retro drill reamer + retro drill blade



Appendix E

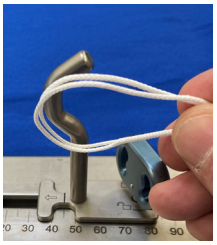
Supports range

Adjustable support

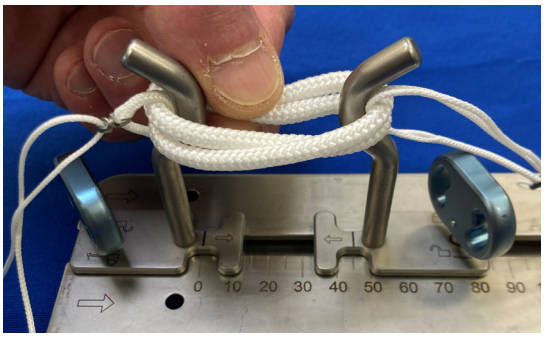


Match the mark A of an adjustable support to the 0 of the graft station.

Match the mark A of the other adjustable support to the graft length minus 10 mm. For a 55 mm graft, place the support at 45 mm.



Pass the COMETE Control loop against a hook of the adjustable supports and the ACLip loop against the hook of the other adjustable support.

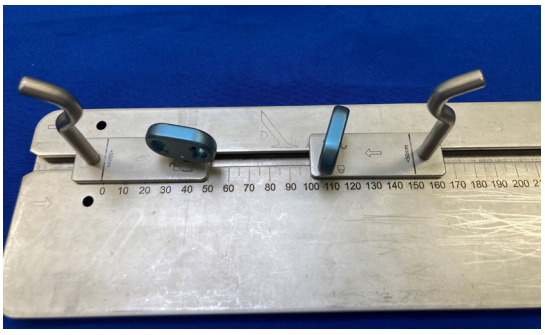


Preparing the graft

Pass the semitendinosus through each loop and around the hooks to obtain a four-bundle graft. Secure the graft by suturing each end of the graft.

Do not suture the comete control loop.

Adjustable support + 50 mm

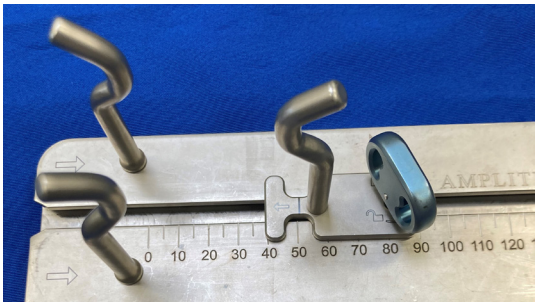


Match the mark of an adjustable support + 50 mm to the 0 of the graft station.

Match the mark of the other adjustable support + 50 mm to the graft length minus 10 mm.

The purpose of this support is to prepare a longer graft.

Fixed support



The fixed supports permit to prepare a graft with two strands.

NOTES

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Customer Service – Export :

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