ACTIVMOTION S.



HIGH TIBIAL &
DISTAL FEMORAL
OSTEOTOMY PLATES



ACTIVMOTION S

Intended purpose : the implants of the Activmotion S range are intended for knee osteotomy in adults.

Contraindications:
- Pregnancy.
- Acute or chronic local or systemic infections.
- Allergy to one of the materials used or sensitivity to foreign bodies.

KNEE ALIGNMENT IS OUR PHILOSOPHY

→ A COMPLETE RANGE OF PLATES FOR KNEE OSTEOTOMIES

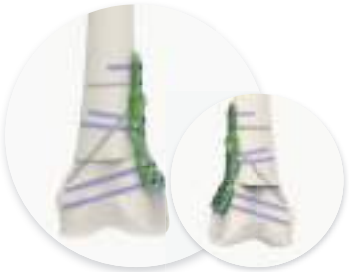
- Closing and opening tibial and femoral plates.
- Dedicated plates for HTO + ligamentoplasty.
- Dedicated plates for deflexion osteotomies.
- A patented Polyaxial system to avoid an ACL tunnel in the tibia or the intercondylar notch in the femur.
- Several designs because one plate cannot meet all your needs.

ACTIVMOTION S

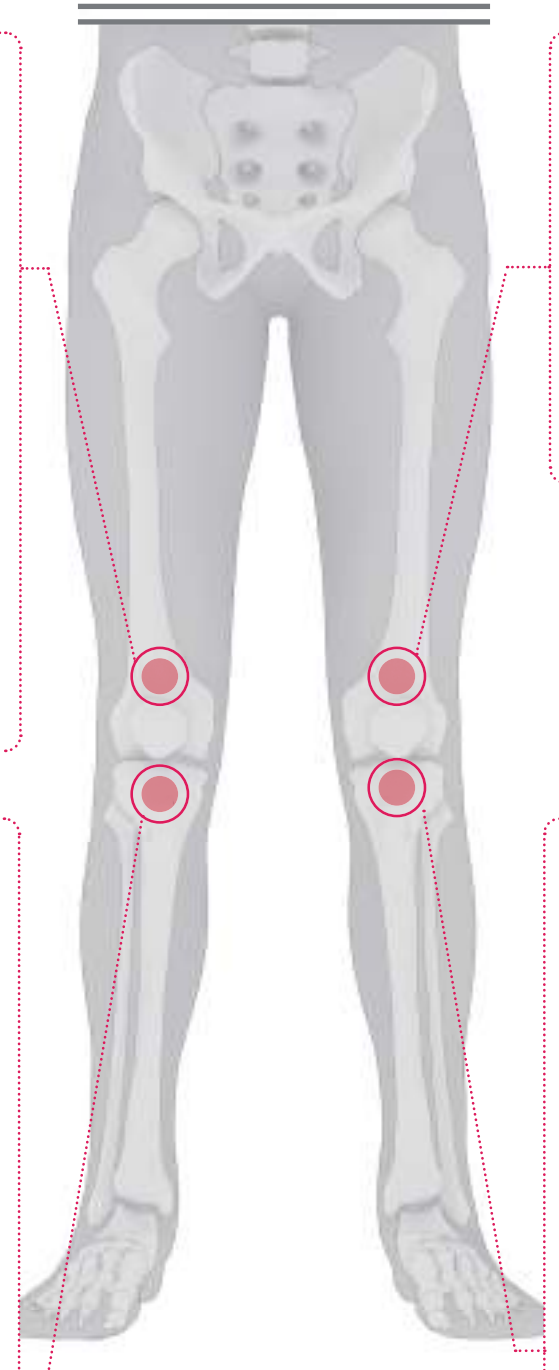
GET THE FULL PICTURE

FEMORAL CLOSING AND DEROTATION PLATES





Pages 9-10 & 12



FEMORAL OPENING PLATES



Page 9

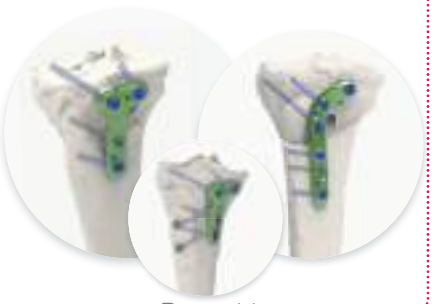
TIBIAL OPENING PLATES





Pages 4-6

DEFLEXION PLATES



Page 11

TIBIAL CLOSING PLATES



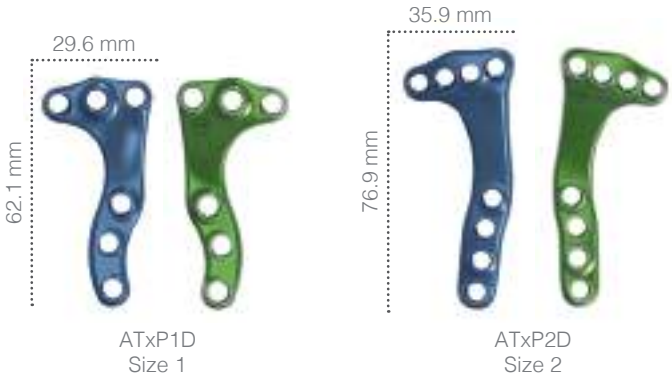


Pages 7-8

TIBIAL VALGISATION PLATES - OPEN WEDGE HIGH TIBIAL OSTEOTOMY PLATES

→ TECHNICAL FEATURES

- **Anatomic asymmetrical implants** (blue anodized for left plates and green anodized for right plates).
- **Screws position supporting the lateral stress.**
- The design of the size 2 implants is adapted to biplanar cuts or large osteotomies.
- Titanium alloy TA6V implants for optimized mechanical resistance.



ATxP1D
Size 1

ATxP2D
Size 2

→ SIZE CHOICE

SIZE 1

For monoplanar osteotomies

- Up to 12 mm of correction

⚠ It is not recommended to use the plate size 1 with a biplanar osteotomy to avoid the distalisation of the plate and the screws ending into the osteotomy gap.

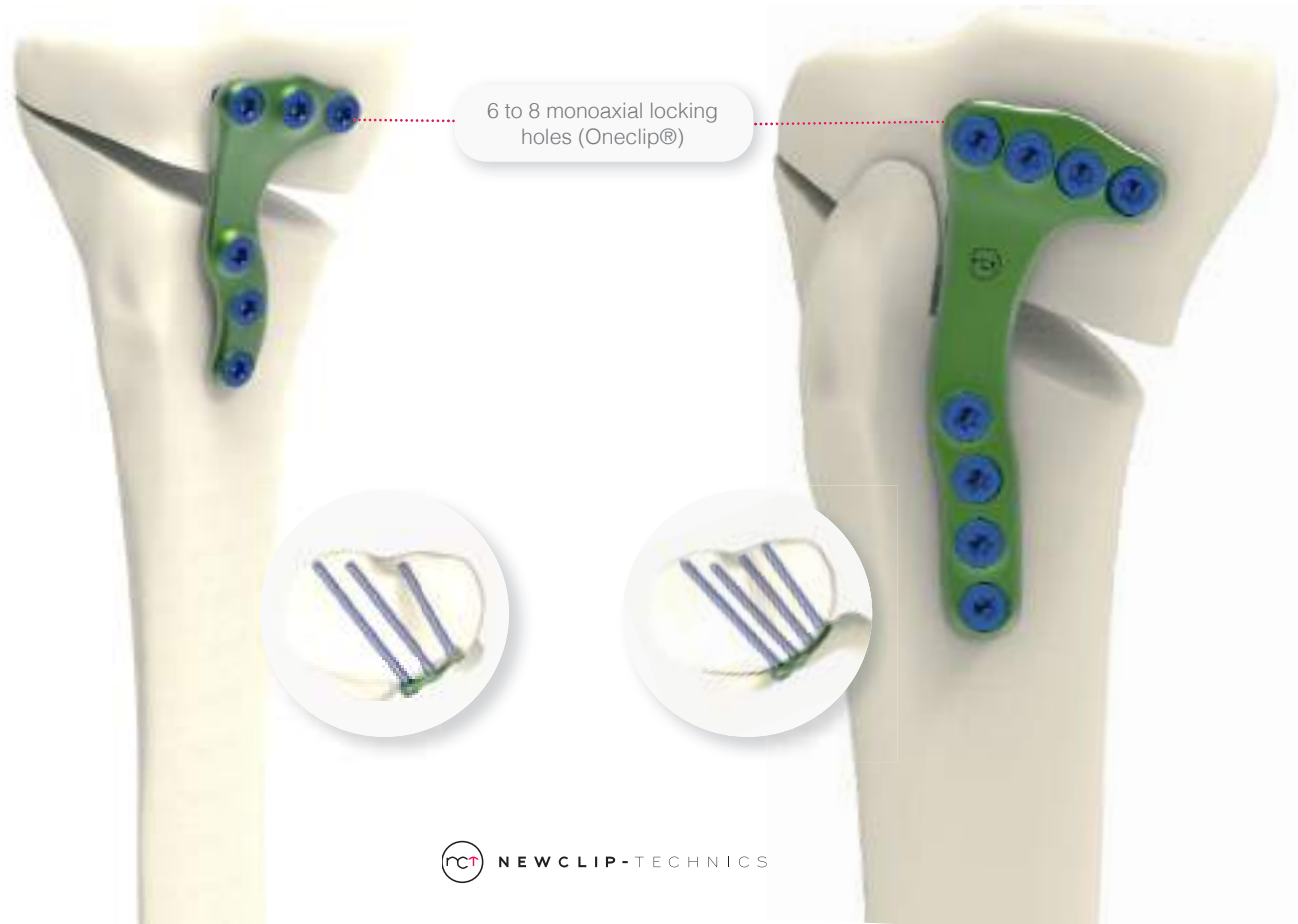
SIZE 2

For biplanar osteotomies

- Ascendant osteotomies

Ref: ATDP1D

Ref: ATDP2D



MANAGING THE FRONTAL DEFORMITIES

TIBIAL VALGISATION PLATES - OPEN WEDGE HIGH TIBIAL OSTEOTOMY PLATES

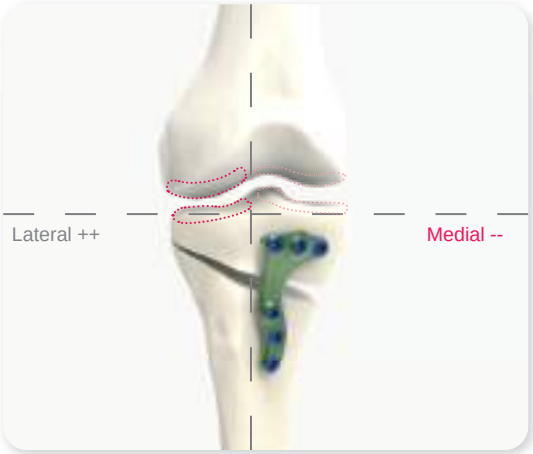
→ ANTEROMEDIAL POSITIONING OF THE HTO PLATES

- Screw position supporting the lateral stress.
- Limiting the tibial internal rotation of the distal fragment and limiting the risk of lateral hinge fracture.
- Limiting the lever arm effect on the screws (shorter screws and working in the direction of the knee roll back).

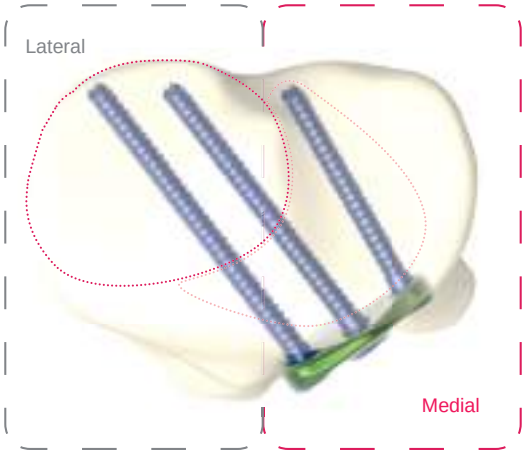
→ OPTIMIZED IMPLANT SIZES WITH GREAT STABILITY

- A specific positioning for an implant with optimized dimensions.
- Titanium alloy (TA6V) implants for optimized mechanical resistance.

Schematic representation of the stress distribution after knee osteotomy:



Anterior view



Superior view

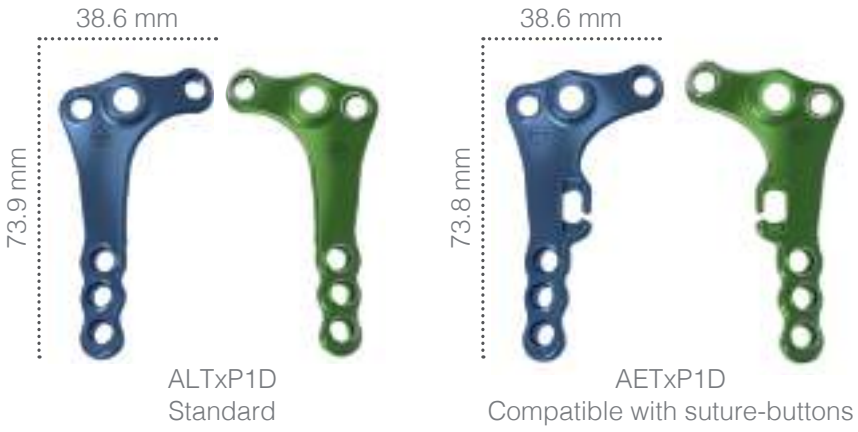
Higher stress distribution
Lower stress distribution

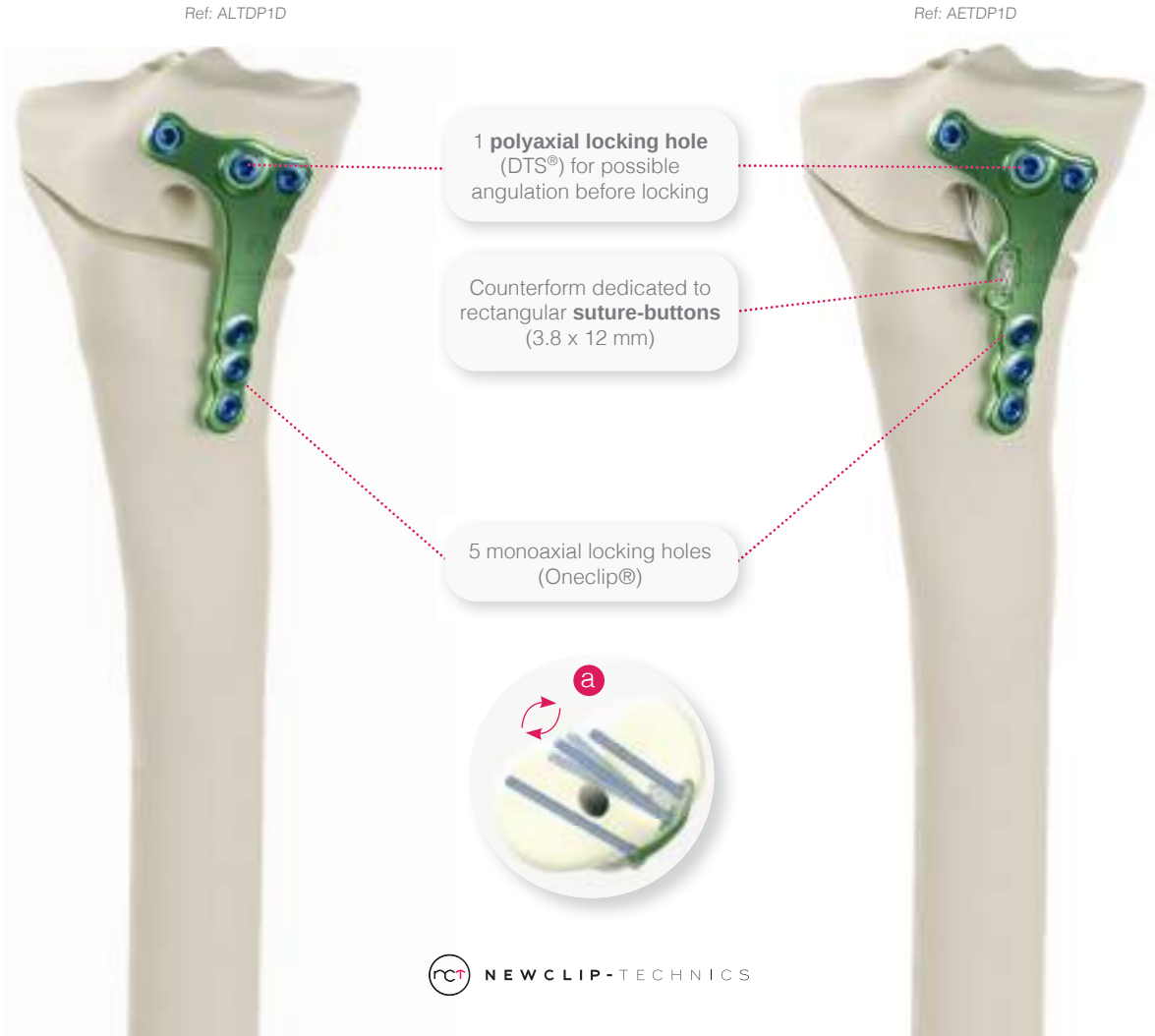
MANAGING THE FRONTAL DEFORMITIES

TIBIAL VALGISATION PLATES - OPENING WEDGE HIGH TIBIAL OSTEOTOMY WITH ACL RECONSTRUCTION PLATES

→ TECHNICAL FEATURES

- **Anatomic asymmetrical implants** (blue anodized for left plates and green anodized for right plates).
- To limit the risk of damaging the tunnel, the plate's upper part and the screws positioning are **optimized for ACL reconstruction** (a).
- 1 polyaxial locking hole located in the proximal part of the plate to avoid damaging the graft.
- One design compatible with the placement of a titanium or non-metallic suture-button.

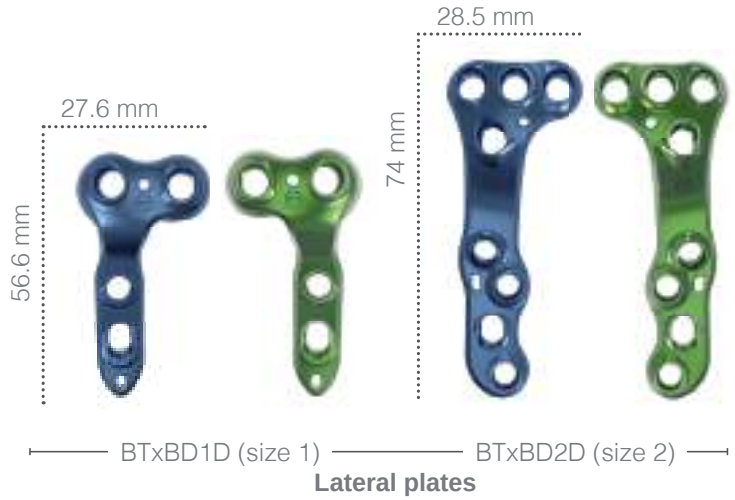




TIBIAL VALGISATION PLATES - LATERAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY PLATES

→ TECHNICAL FEATURES

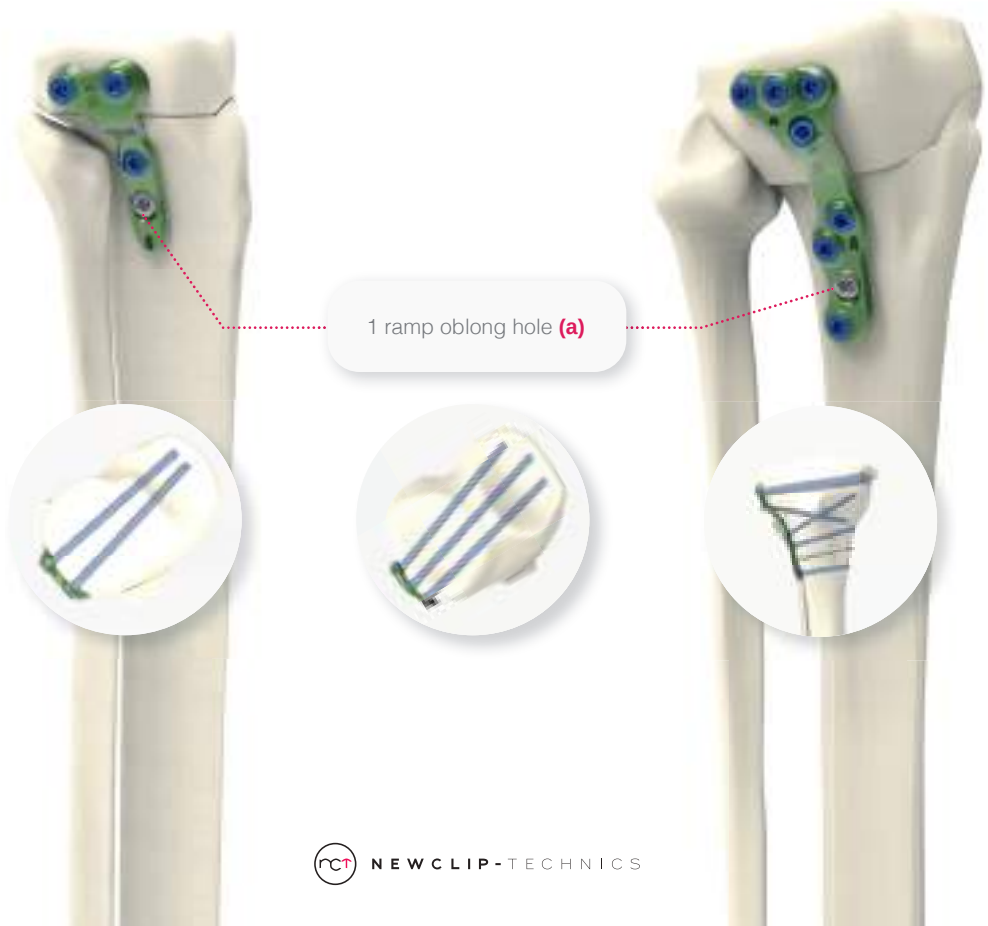
- 2 sizes available.
- **Precontoured implants:** to establish the maximum congruence between the plate and the bone.
- **Compressive ramp oblong hole** allows a guided axial compression by using the screw/plate interface (a) (*see page 13*).
- **Titanium alloy TA6V** implants for optimized mechanical resistance.



Lateral plates

Ref: BTDBD1D

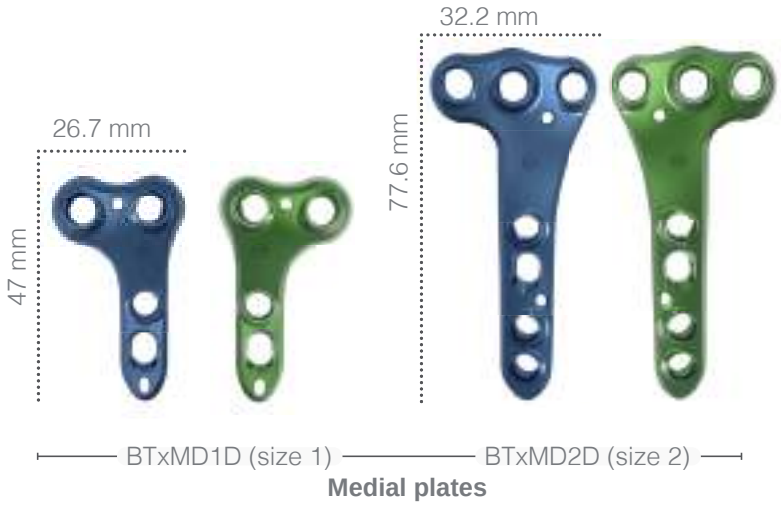
Ref: BTDBD2D



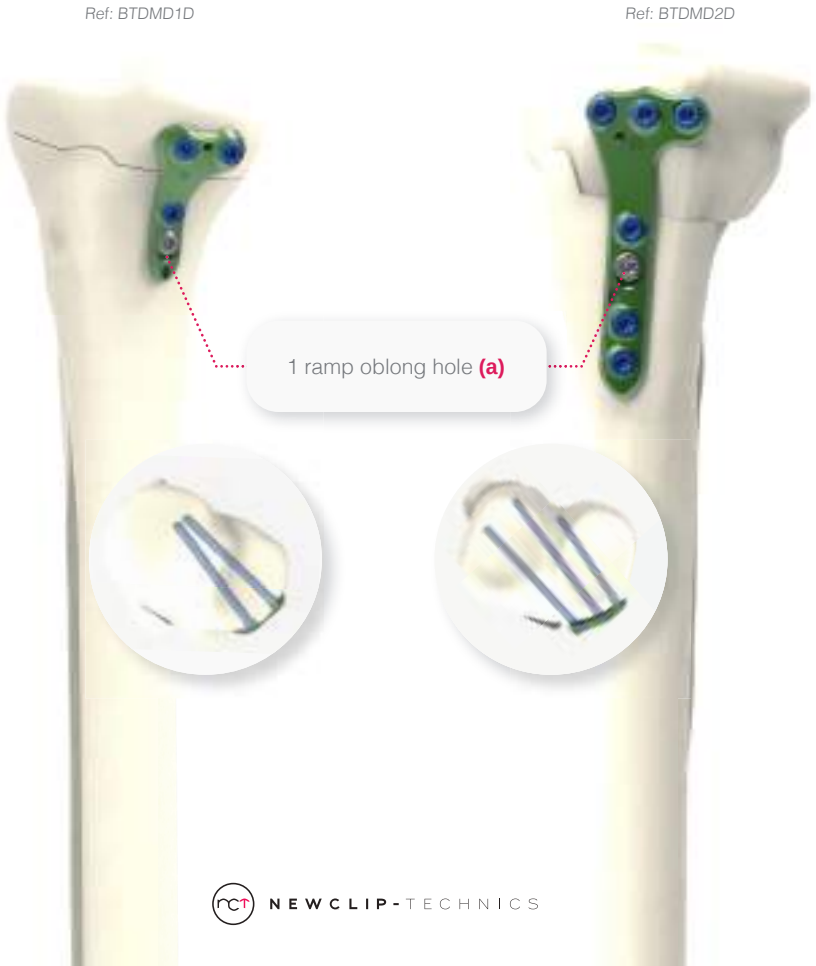
TIBIAL VARISATION PLATES - MEDIAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY PLATES

→ TECHNICAL FEATURES

- 2 sizes available.
- **Precontoured implants:** to establish the maximum congruence between the plate and the bone.
- **Compressive ramp oblong hole** allows a guided axial compression by using the screw/plate interface (a) (*see page 13*).
- **Titanium alloy TA6V** implants for optimized mechanical resistance.
- Anterior-medial positioning for easier plate placement while avoiding stepping due to cortical discontinuity on the medial side.



Medial plates



FEMORAL VARISATION PLATES - LATERAL OPENING AND MEDIAL CLOSING DISTAL FEMORAL PLATES

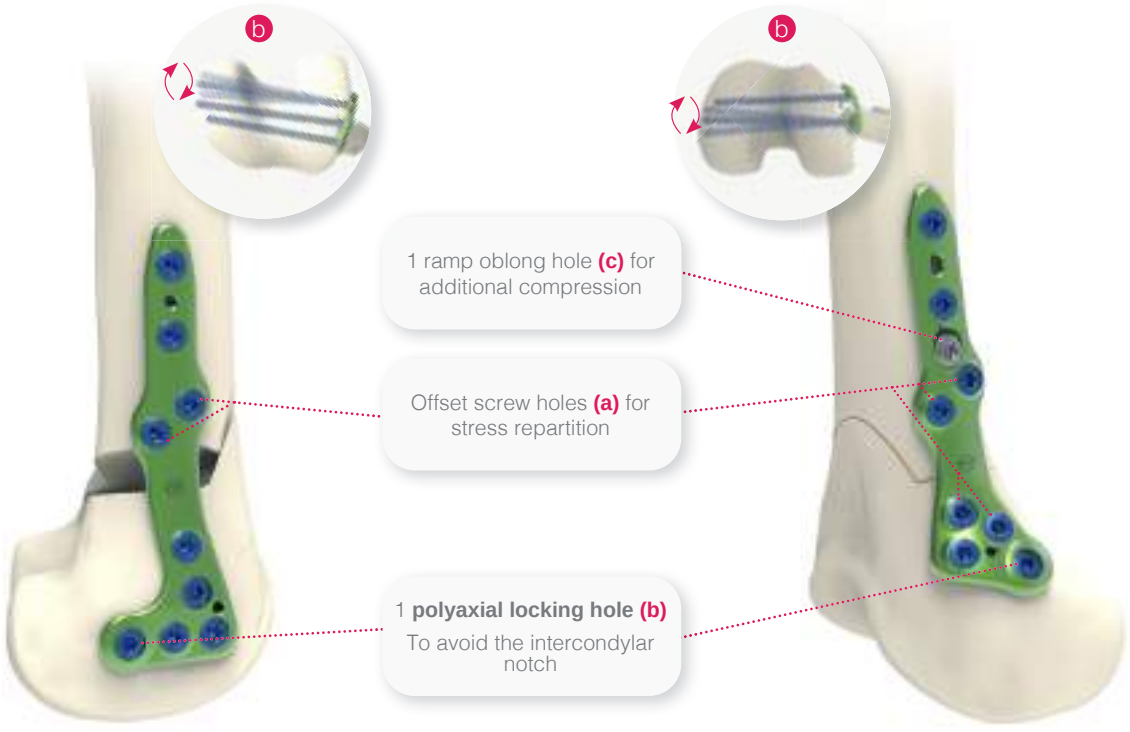
→ TECHNICAL FEATURES

- Medial closing and lateral opening plates.
- Anatomic asymmetrical implants (green anodized for right plates and blue anodized for left plates)
- 2 offset screw holes improving the mechanical features of the assembly and preventing loss of angular correction (a)
  - On both sides of the osteotomy site for closing;
  - Above the osteotomy site for opening.
- Monoaxial locking screws (Oneclip®):
  - 7 screws for the closing plate;
  - 8 screws for the opening plate;
- 1 polyaxial locking screw (DTS) allowing to avoid the intercondylar notch, if necessary (b). Possible angulation of the screw before locking (25° locking range) thanks to the DTS system.
- 1 ramp oblong hole allows a guided axial compression by using the screw/plate interface (c) (see page 13).



JATxL1D
Opening

JBTxM1D
Closing



Réf: JATDL1D

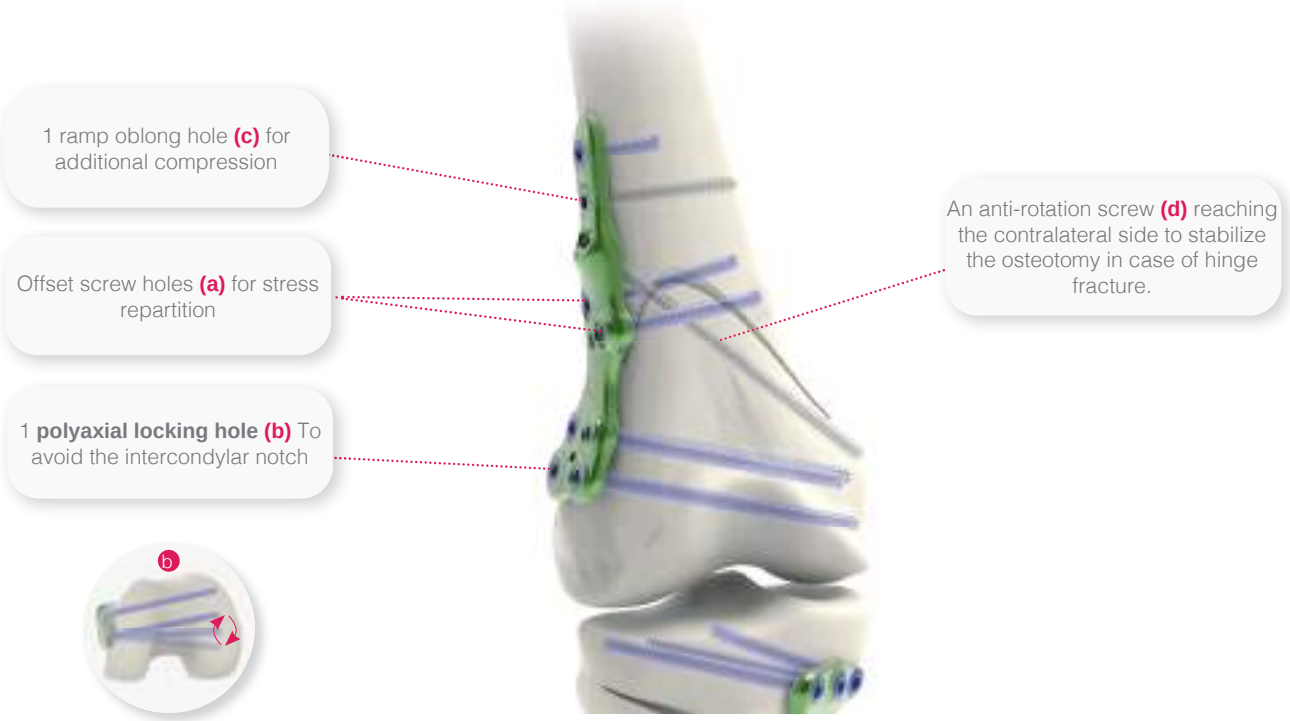
Réf: JBTDM1D

FEMORAL VALGISATION PLATES - LATERAL CLOSING DISTAL FEMORAL PLATES

→ TECHNICAL FEATURES

- Lateral closing plates.
- Anatomic asymmetrical implants (green anodized for right plates and blue anodized for left plates)
- 2 offset screw holes improving the mechanical features of the assembly and preventing loss of angular correction (a)
- Monoaxial locking screws (Oneclip®):
  - 6 screws;
  - 1 polyaxial locking screw (DTS) allowing to avoid the intercondylar notch, if necessary (b). Possible angulation of the screw before locking (25° locking range) thanks to the DTS system.
- 1 ramp oblong hole allows a guided axial compression by using the screw/plate interface (c) for closing (see page 13).
- 1 anti-rotation screw (d) reaching the contralateral side to stabilize the osteotomy.





MANAGING THE TIBIAL SLOPE

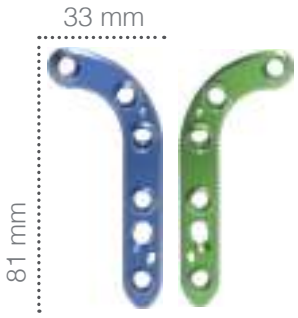
DEFLEXION OSTEOTOMY PLATES ANTERIOR CLOSING PROXIMAL TIBIAL PLATES

→ TECHNICAL FEATURES

- Designs adapted to the different techniques :
  - Small plate for the supra and trans-tubercle techniques,
  - Longer plate for the infra-tubercle technique.
- 1 central polyaxial screw to avoid the ACL tunnel and any conflict with the osteotomy cut.
- Screws orientation studied to support both the medial and lateral plateau.
- 1 ramp oblong hole allows a guided axial compression by using the screw/plate interface.



BATxMD1D
Size 1

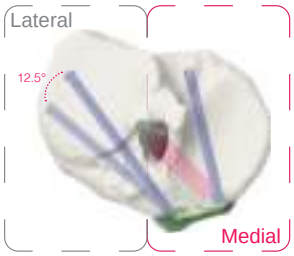


BATxMD2D
Size 2

→ SIZE 1: SUPRA-TUBERCLE AND TRANS-TUBERCLE OSTEOTOMY





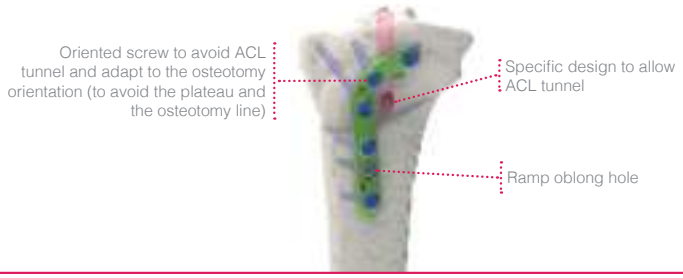


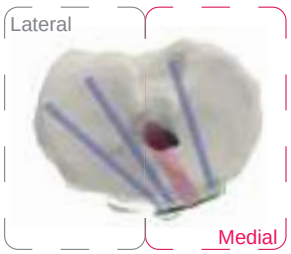




→ SIZE 2: INFRA-TUBERCLE OSTEOTOMY







MANAGING THE TORTIONAL DEFORMITIES

DISTAL FEMORAL DEROTATION OSTEOTOMY PLATES

→ TECHNICAL FEATURES

- Medial and lateral femoral derotation plates.
- Anatomic asymmetrical implants (green anodized for right plates and blue anodized for left plates).
- 2 offset screw holes improving the mechanical features of the assembly and preventing loss of angular correction (a).
- Monoaxial locking screws (Oneclip®):
  - 6 screws;
  - 1 polyaxial locking screw (DTS) allowing to avoid the intercondylar notch, if necessary (b). Possible angulation of the screw before locking (25° locking range) thanks to the DTS system.
- 1 ramp oblong hole allows a guided axial compression by using the screw/plate interface (c) (see page 13).
- 1 anti-rotation screw (d) reaching the contralateral side to stabilize the osteotomy.



JCTxM1D
Medial



JCTxL1D
Lateral



TECHNICAL FEATURES

FIXATION FEATURES

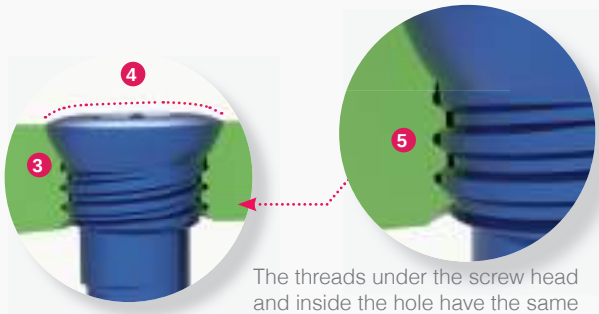
→ SCREW TECHNICAL FEATURES

- Ø4.5 mm reinforced core screws for optimized resistance in bending (1).
- Hexalobular T20 (2).



→ LOCKING SYSTEM FEATURES

- **Low profile construct:**
  - The screw is stopped in the hole by its cap, insuring the locking (3).
  - The screw head is buried in the plate (4).
  - Coaptation of both profiles when locking (5).
  - Plate and screws made from the same material: titanium alloy.



The threads under the screw head and inside the hole have the same characteristics

- **Monoaxial locking fixation**

  Oneclip®: patented design.

- **Polyaxial locking fixation**

  The DTS® system (patented design) allows the screw to lock into the plate while permitting an angulation of the screw.

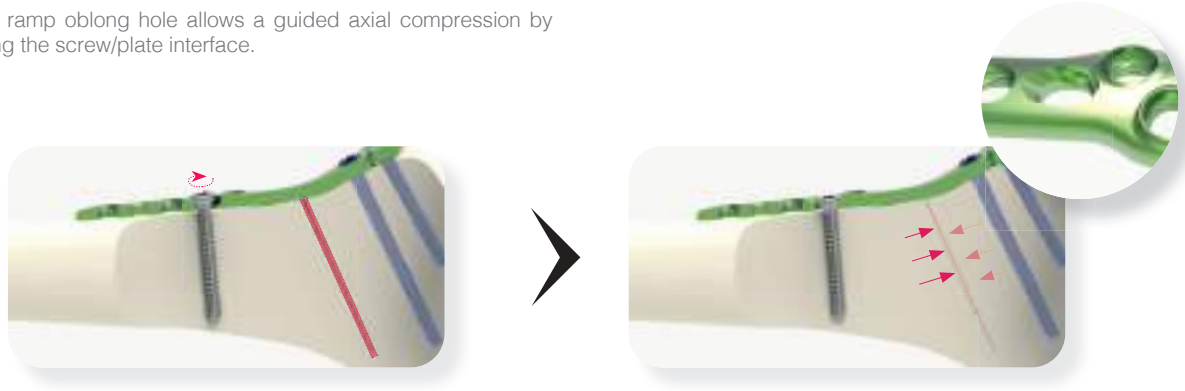
  Newclip Technics plates combine both polyaxial and locking technologies to create a fixed-angle construct.

  Possible angulation of the screw before locking (25° locking range) thanks to the DTS® System to avoid the joint.



→ COMPRESSIVE RAMP OBLONG HOLE

The ramp oblong hole allows a guided axial compression by using the screw/plate interface.



TECHNICAL FEATURES

INSTRUMENTATION

Dedicated instruments to prepare, create and maintain the appropriate angular correction during osteosynthesis:

- Chisels (to be used to prepare the opening);
- 8 metallic wedges (4 mm to 18 mm; 2 mm increment);
- Meary pliers (controlled opening thanks to the markings: 3 to 19 mm (2 mm increment);
- Standard cutting guide for closing osteotomies.

→ DIFFERENT METHODS OF OPENING OSTEOTOMIES

Chisels



Prepare the opening by progressively inserting chisels with a hammer. The metallic wedges or the meary pliers can then be used to open the osteotomy.

Meary pliers



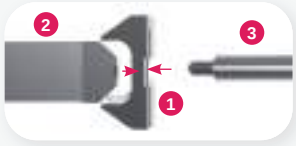
Apply pressure by squeezing the pliers to increase the size of the opening.

Metallic wedges



Insert increasing size wedges until finding the appropriate one. Eight different wedges are available from 4 to 18 mm.

→ HOW TO USE THE CUTTING GUIDE



1. Place the NCT cutting guide - piece 1 (ANC014-1) (1) into the NCT cutting guide - piece 2 (ANC014-2) (2), and screw the handle onto the construct (ANC024) (3).





2. Choose the correct side: **R** for right and **L** for left



3. Choose the correct angle by sliding the handle in a vertical movement; once in the correct position, turn the handle to fix in place.



4. The blade can then be inserted into the top slot of the cutting guide to perform the cut.

→ HOW TO USE THE LENGTH GAUGE

For screws under 30mm, the measurement can be read on the side of the length gauge (ANC1899).





TECHNICAL FEATURES

CARE + (FOR VASCULAR PROTECTION)

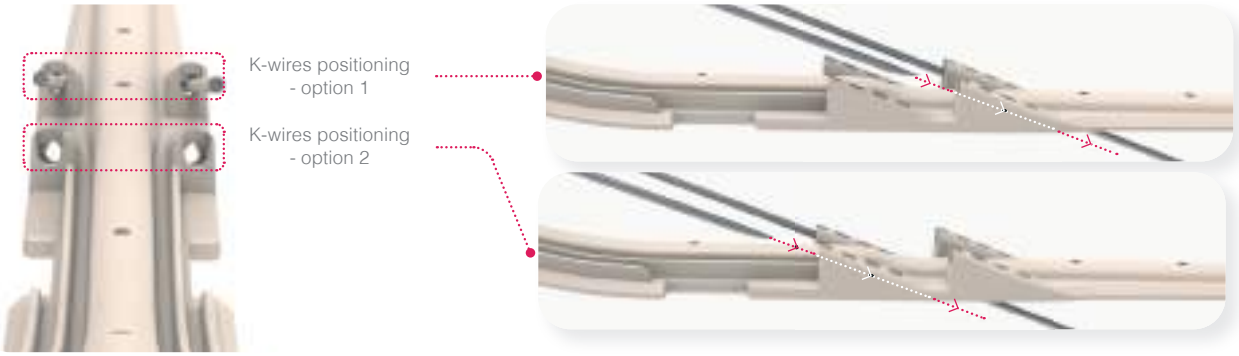
Care+



→ TECHNICAL FEATURES

Protects the vascular structures during the cutting phase:

- The retractor is secured in position on the bone using two K-wires through the pin sleeves.
- Two options of K-wires positioning to adapt to the bone size.



Metallic groove inserted in the instrument:

- Optimized to position the instrument and preview the cut.
- Protects the instrument from the saw blade and avoids plastic debris.



Optimized to help for instrument positioning





OPTIONS

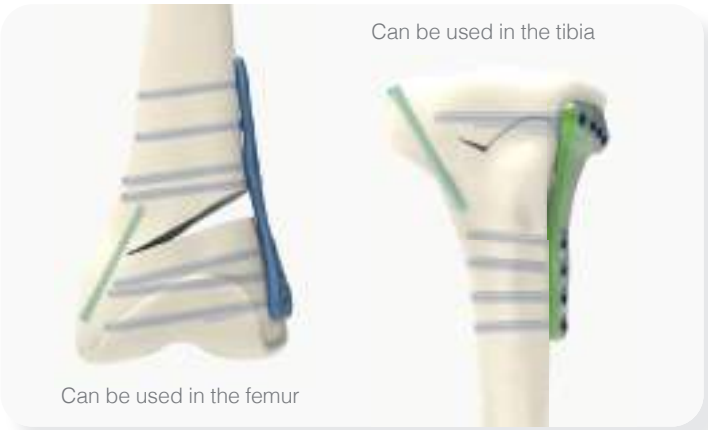
INITIAL K - HINGE SCREW

This option (instrument kit (Initial K - Hinge Screw) and screws) is not provided in the ACTIVMOTION S set, it must be ordered separately. The screw must always be used in association with an osteotomy plate.



→ TECHNICAL FEATURES

- **A 4.5 mm cannulated headless compressive screw into the hinge to:**
  - Reinforce the bone hinge [1].
  - Compress the hinge in case of a Takeuchi fracture (type I or III).



→ A SINGLE USE SET OF INSTRUMENTS

- **Ready when you are:** already sterile.
- Includes all the instruments needed to insert the screw.



For more information about the Initial K Hinge Screw please refer to the brochure.

INITIAL™ HINGE SCREW

SURGICAL TECHNIQUE

HIGH TIBIAL OSTEOTOMY APPROACH

The technique presented below is one of the surgical techniques possibilities. The choice is made according to surgeon's preferences.
Use an antero-medial approach to expose the proximal tibia metaphysis.



1. The patient is positioned in a supine position on the operating table. The procedure is performed under pneumatic tourniquet and a small pillow is placed under the buttock of the operated side in order to maintain the limb in neutral position.

2. An 8 cm slightly oblique vertical incision is made along the antero-medial surface, running over the joint space down to under the tibial tuberosity.



3. A single-plane incision is made through the periosteum; then the hamstring and the medial collateral ligament (MCL) are retracted posteriorly thanks to the Care + retractor.

   The wider the angular correction is, the more the hamstring and MCL should be released distally.

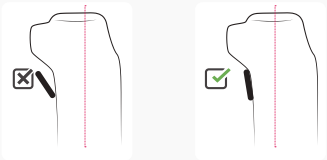
CAUTION: if the release is adequate, the opening of the osteotomy and the insertion of the bone graft can be performed with no risk of tearing the lateral cortical hinge. If it is not, forcing the graft in may tear the hinge, thus seriously jeopardizing complete bone healing. ie: pseudarthrosis.



4. Position the Care+ retractor at the level of the wanted osteotomy cut in order to protect the vascular structures from the saw blade.

   Optional: If the Care+ is positionned between the hamstring and the MCL, use a smaller retractor to pull back the MCL.

CAUTION: the groove must be positioned parallel to the front plane.





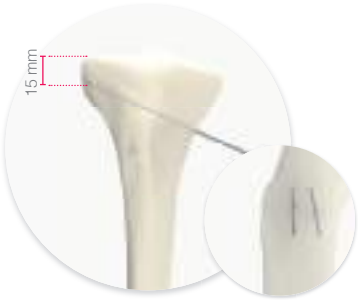
5. When its position is validated under X-ray, secure the Care+ with two divergent 2.2 mm pins.





6. Clear the deepest part of the patellar tendon down to its attachment onto the tibial tuberosity, and protect it using a retractor during the osteotomy.

MEDIAL OPENING WEDGE HIGH TIBIAL OSTEOTOMY - MONOPLANAR CUT



1. To perform the osteotomy cut, insert:
   - **The first pin** from the insertion ofthe hamstring until reaching the lateral cortex, 15 mm below the tibial plateau ridge.
   - **The second pin** parallel to the first one with a 20 mm distance between both of the pins, to maintain the tibial slope.
   - It is recommended to position **a third pin** in the opposite cortex to strengthen your hinge and prevents for cutting further.



2. Incise upwards towards the head of the fibula and stop the cut 10 mm before the lateral cortical area. Then, remove the pins except the hinge pin.



3. Insert wedges of increasing sizes until finding the appropriate one (4 - 18 mm) while maintaining the lateral surface of the tibia. Once the appropriate wedge is inserted, the angular correction is maintained during osteosynthesis.

   Alternatively, chisels or the meary pliers can be used to increase the size of the opening *(see page 14 for more information)*.



4. Position the plate onto the antero-medial side so that:
   - the proximal part of the plate runs parallel to the osteotomy cut, or
   - the distal part of the plate runs parallel to the tibial tuberosity.



or



5a. Lock the first Ø4.0 mm guide (ANC998) using the screwdriver (ANC975) in the hole under the osteotomy cut, then start drilling using a Ø4.0 mm drill (ANC211) (1). Then, above the osteotomy cut, insert a Ø4.0 mm guide into the central hole (2) and drill.

To help with stability, the two drills guides can be kept in position and a third one can be used to insert the first screw.

Or alternatively, before drilling, the plate can be temporarily maintained in position with Ø2.2 mm pins (33.0222.200) inserted through the reductors of the drill guides (ANC1009) (3).

N.B. *to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975



5b. The screw length can be directly read on the drill at the rear of the drill guide (see image 5a) or thanks to the length gauge (ANC1899). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.

N.B. *to ease the insertion of the screws, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink and insert the screw again.*



ANC120-US



6. Insert and lock the two Ø4.5 mm screws (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand. Proceed similarly for the other four monoaxial locking holes.



ANC975



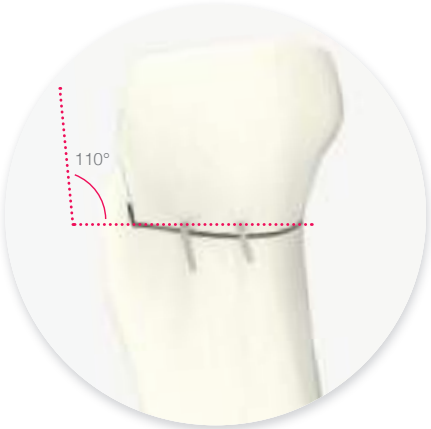
FINAL RESULT

The construct is complete when the metallic wedge and the hinge pin are removed.

MEDIAL OPENING WEDGE HIGH TIBIAL OSTEOTOMY - BIPLANAR CUT*

** A biplanar cut must be performed with an Activmotion S plate size 2*





The osteotomy cut is perfomed in two steps:

1. **Ascending osteotomy cut:** the cut is performed by oscillating saw, alongside and below the two pins. Stop the incision 5-10 mm from the lateral cortex area.

   It is recommended to position **a third pin** in the opposite cortex to strengthen your hinge and prevents for cutting further.

2. **Transverse osteotomy cut:** perfom the anterior transverse osteotomy cut behind the tibial tuberosity at a resulting angle of around 110° to ascending cut.

   Then, remove the pins except the hinge pin.



3. Insert wedges of increasing sizes until finding the appropriate one (4-18 mm) while maintaining the lateral surface of the tibia. Once the appropriate wedge is inserted, the angular correction is maintained during osteosynthesis.

   Position the plate onto the antero-medial side so that the distal part of the plate runs parallel to the tibial tuberosity.

   Alternatively, chisels or meary pliers can be used to increase the size of the opening *(see page 14 for more information on these techniques)*.







4. Lock the first Ø4.0 mm guide (ANC998) in the hole under the osteotomy cut, then start drilling using a Ø4.0 mm drill (ANC211) (1).

   Above the osteotomy cut, insert a Ø4.0 mm guide into the central hole (2) and drill.

   To help with stability, the two drills guides can be kept in position and a third one can be used to insert the first screw.

   Alternatively, before drilling, the plate can be temporarily maintained in position with Ø2.2 mm pins (33.0222.200) inserted through the reductors of the drill guides (ANC1009) (3).

   N.B. *to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975

5. The screw length can be directly read on the drill at the rear of the drill guide *(see image step 4)* or thanks to the length gauge (ANC1899). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read

   Remove the drill guides. Insert and lock two Ø4.5 mm screws (ST4.5LxxD-ST). The final tightening of the screws must be performed by hand. Proceed similarly for the remaining locking holes.

   N.B. *to ease the insertion of the screws, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.*



ANC120-US

FINAL RESULT

The construct is complete when the metallic wedge and hinge pin are removed.

MEDIAL OPENING WEDGE HIGH TIBIAL OSTEOTOMY WITH ACL RECONSTRUCTION



1. Perform the osteotomy cut, by inserting wedges of increasing sizes until finding the appropriate one (4-18 mm) while maintaining the lateral surface of the tibia. Once the appropriate wedge is inserted, the angular correction is maintained during osteosynthesis.

   Alternatively, chisels or the meary pliers can be used to increase the size of the opening *(see page 14 for more information)*.



2. Perform the ACL tunnel following the surgeon's surgical technique.



3. Insert the spacer (Ø08 mm: ANC649 or Ø10 mm: ANC601) in order to preserve the tunnel during the insertion of the proximal screws (*see steps 5 and 6*).



4. Position the plate: the diaphyseal part of the implant should run alongside the anterior tibial tuberosity, the anterior holes are positioned on either sides of the tunnel.



5. Insert the Ø4.5 mm screws (ST4.5LxxD-ST) located on both sides of the osteotomy site. Drill with a Ø4.0 mm drill bit (ANC211) using the drill guide (ANC998). To avoid drilling through the tunnel, use the polyaxiality for the placement of the screw into the proximal central hole. Before drilling, a Ø2.2 mm pin (33.0222.200) can be inserted though the reductor of the drill guide (ANC1009) (1).

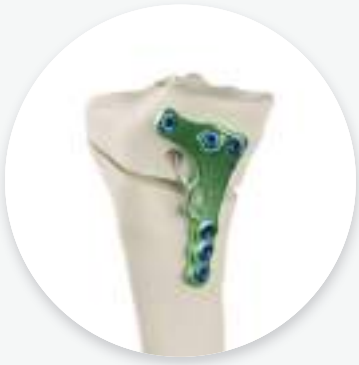


6. Once the first two screws have been inserted, repeat the procedure with the other two proximal Ø4.5 mm screws. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again. Final tightening of the screws must be performed by hand.



FINAL RESULT

Complete the procedure by inserting the last two distal screws and removing the metallic wedge and the spacer. The ligamentoplasty can then be performed.

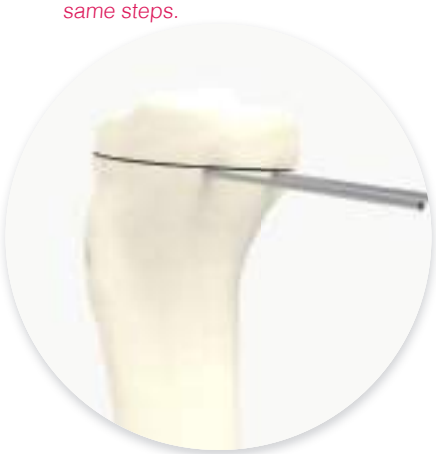


OPTIONAL

If the dedicated plate is used with the rectangular titanium or non-metallic suture-button (3.8 x 12 mm), this latest must be inserted into the dedicated counter-form.

MEDIAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY (PAGE 1/2)

Example of the surgical technique for the medial closing plate size 1 (BTDMD1D). The medial closing plate size 2 (BTxMD2D) follows the same steps.



1. **Perform the first cut.**
   Insert two pins approximately 25 mm below the medial articular surface until reaching the external cortex and 15 mm below the tibial plateau.
   It is recommended to position **a third pin** in the opposite cortex to strengthen your hinge and prevents for cutting further.

   Perform the cut stopping at 6 mm from the lateral cortex.

   N.B: *a biplanar cut can be performed: perform the transversal anterior cut behind the tibial tuberosity to obtain an angle of 110° with the ascending cut.*

If using the medial closing plate size 2 :
Insert two pins approximately 40-50 mm below the medial articular surface and run oblique towards the tip of the fibula. Perform the cut stopping at 6 mm from the lateral cortex. The biplanar tuberosity cut is then performed.



2. Perform the distal 2nd cut using the cutting guide (*see page 14 on how to use the guide*):
   - Set the chosen correction angle on the cutting guide (ANC014-1 / ANC014-2).
   - Insert the blade of the cutting guide into the first cut.
   - Perform the second osteotomy in the cutting slot with an oscillating saw.

   Remove the bone wedge and make sure that every residual bone fragment has been removed from the osteotomy.

   Then, remove the hinge pin and carefully close the osteotomy by applying continuous pressure to the lateral lower limb while stabilizing the knee joint region.



3. Position the plate onto the medial surface of the proximal tibia. It is important to ensure that the zone between the distal and proximal screws is located on the osteotomy site and that the proximal screws do not penetrate the joint.

   The plate can be temporarily held in position with two Ø2.2 mm pins (33.0222.200). **The distal pin must be postionned in the distal part of the oblong pin hole.**

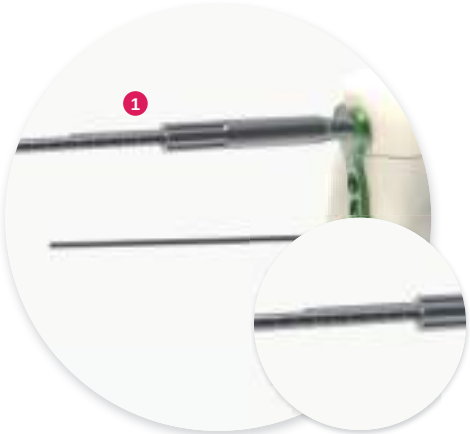


4. Lock the Ø4.0 mm drill guide (ANC998) into the medial hole situated above the osteotomy cut. Then, drill using the Ø4.0 mm drill bit (ANC211).

   N.B. *to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975





5. Determine the screw length directly at the rear of the Ø4.0 mm drill guide (ANC998) (1), or with the length gauge (ANC1899) (2). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read. Then, insert a Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand



ANC975

N.B. *To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.*

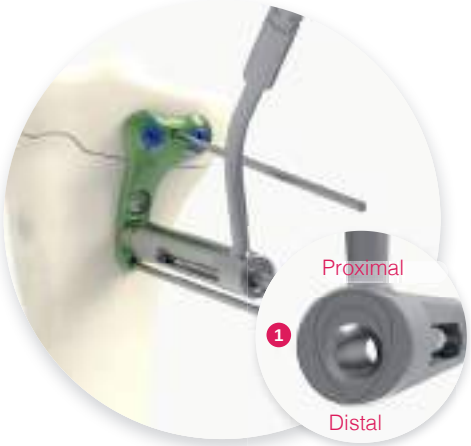


ANC120-US

MEDIAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY (PAGE 2/2)



6. Repeat the same procedure as steps 4 and 5 for the anterior hole above the osteotomy cut.



7. Drill into the **distal part of the oblong hole** using the dedicated drill guide (ANC1064) and the **Ø3.5 mm drill bit** (ANC1900). The orientation of the drill guide must be taken into account to allow compression (1).

   Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).



ANC1899



8. Insert a Ø4.5 mm standard cortical screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



9. Repeat the same procedure as the steps 4 and 5 to insert the remaining Ø4.5 mm locking screw (ST4.5LxxD-ST) in the hole situated under the osteotomy cut. The pins can then be removed.



FINAL RESULT



MEDIAL CLOSING PLATE SIZE 2

The surgical technique for the medial closing plate size 2, follows the same steps as the medial closing plate size 1.

LATERAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY SIZE 1 (PAGE 1/2)



1. **Perform the first cut.**
   Insert two pins 20 mm below and parallel to the articular surface.

   It is recommended to position **a third pin** in the opposite cortex to strengthen your hinge and prevents for cutting further.

   Perform the cut stopping at 6 mm from the lateral cortex.

   An additional fibular osteotomy or release of the proximal tibiofibular joint must be performed.

   N.B: *a biplanar cut can be performed: perform the transversal anterior cut behind the tibial tuberosity to obtain an angle of 110° with the ascending cut.*



2. Perform the distal 2nd cut using the cutting guide (see page 14 on how to use the guide):
   - Set the chosen correction angle on the cutting guide (ANC014-1 / ANC014-2).
   - Insert the blade of the cutting guide into the first cut.
   - Perform the second osteotomy in the cutting slot with an oscillating saw.

   Remove the bone wedge and make sure that every residual bone fragment has been removed from the osteotomy.

   Then, remove the hinge pin and carefully close the osteotomy by applying continuous pressure to the medial lower limb while stabilizing the knee joint region.



3. Position the plate onto the lateral surface of the proximal tibia. It is important to ensure that the zone between the distal and proximal screws is located on the osteotomy site and that the proximal screws do not penetrate the joint.

   The plate can be temporarily held in position with two Ø2.2 mm pins (33.0222.200). **The distal pin must be postionned in the distal part of the oblong pin hole.**



4. Lock the Ø4.0 mm drill guide (ANC998) into the hole situated above the osteotomy cut. Then, drill using the Ø4.0 mm drill bit (ANC211).

   N.B. *to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975





5. Determine the screw length directly at the rear of the Ø4.0 mm drill guide (ANC998) (1), or with the length gauge (ANC1899) (2). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.

   Then, insert a Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand.



ANC975

N.B. *To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.*

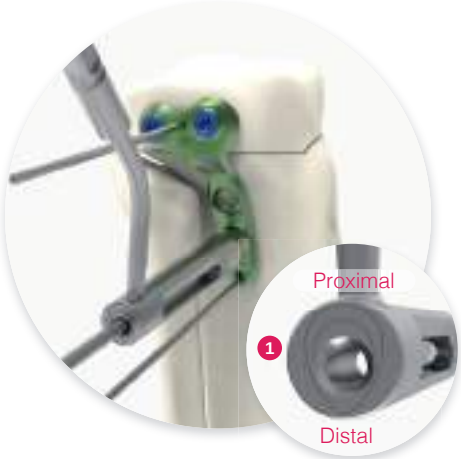


ANC120-US

LATERAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY SIZE 1 (PAGE 2 /2)



6. Repeat the same procedure as steps 4 and 5 for the posterior hole above the osteotomy cut.



7. Drill into the **distal part of the oblong hole** using the dedicated drill guide (ANC1064) and the **Ø3.5 mm drill bit** (ANC1900). The orientation of the drill guide must be taken into account to allow compression (1).

   Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).



ANC1899



8. Insert a Ø4.5 mm standard cortical screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



9. Repeat the same procedure as the steps 4 and 5 to insert the remaining Ø4.5 mm locking screw (ST4.5LxxD-ST) in the hole situated under the osteotomy cut. The pins can then be removed.



FINAL RESULT

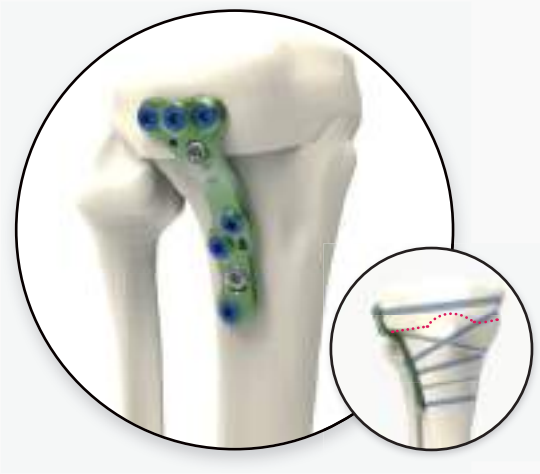
LATERAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY SIZE 2 (PAGE 1/4)

For the size 2 lateral closing wedge high tibial plate (BTxBD2D-ST), two cutting options can be performed, there are certain steps which can change. Please find the different options below and their surgical technique:



→ OPTION 1: OBLIQUE CUT

(FOR THIS OPTION THE SURGICAL TECHNIQUE IS IN PINK)



→ OPTION 2: HORIZONTAL CUT

(FOR THIS OPTION THE SURGICAL TECHNIQUE IS IN BLACK)

STEP 1



1. **Perform the first cut.**
   Insert two pins approximately 40-50 mm below the lateral articular surface and run oblique until reaching the medial cortex 15 mm below the tibial plateau.

   It is recommended to position **a third pin** in the opposite cortex to strengthen your hinge and prevents for cutting further.

   Protect the posterior aspect of the tibia and perform the cut stopping at 6 mm from the medial cortex. The biplanar tuberosity cut is then performed.

   An additional fibular osteotomy or release of the proximal tibiofibular joint must be performed.



1. **Perform the first cut.**
   Insert two pins approximately 30-40 mm below and parallele to the lateral articular surface.

   It is recommended to position **a third pin** in the opposite cortex to strengthen your hinge and prevents for cutting further.

   Protect the posterior aspect of the tibia and perform the cut stopping at 6 mm from the medial cortex. The biplanar tuberosity cut is then performed.

   An additional fibular osteotomy or release of the proximal tibiofibular joint must be performed.

LATERAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY SIZE 2 (PAGE 2 /4)

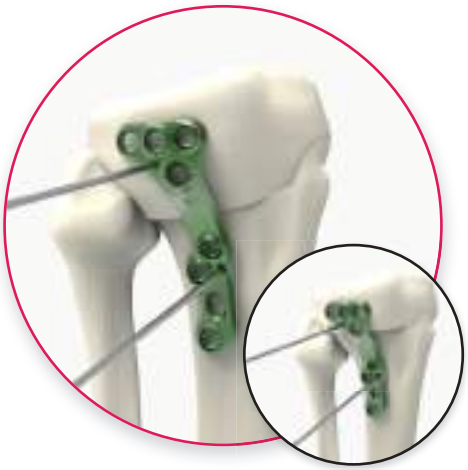
THE FOLLOWING STEPS APPLY TO THE **OPTION 1, OBLIQUE CUT** AND THE **OPTION 2, HORIZONTAL CUT**



2. Perform the distal 2nd cut by using the cutting guide *(see page 14 on how to use the guide)*:
   - Set the chosen correction angle on the cutting guide (ANC014-1 / ANC014-2).
   - Insert the blade of the cutting guide into the first cut until reaching the hinge.
   - Perform the second cut with an oscillating saw inserted in the slot of the guide.

   Remove the bone wedge and make sure that every residual bone fragment has been removed from the osteotomy.

   Then, remove the hinge pin and carefully close the osteotomy by applying continuous pressure to the medial lower limb while stabilizing the knee joint region.



3. Position the plate onto the lateral surface of the proximal tibia. It is important to ensure that the zone between the distal and proximal screws is located on the osteotomy site and that the proximal screws do not penetrate the joint.

   The plate can be temporarily held in position with two Ø2.2 mm pins (33.0222.200). **The distal pin must be postionned in the distal part of the oblong pin hole.**

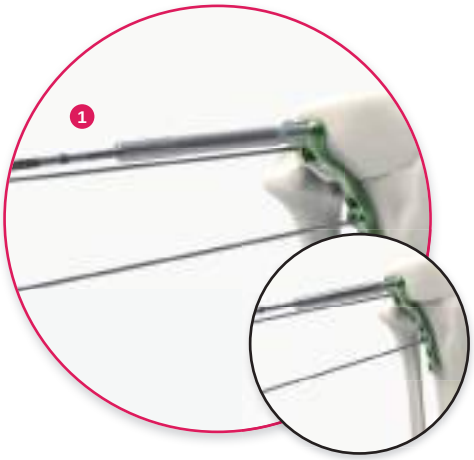


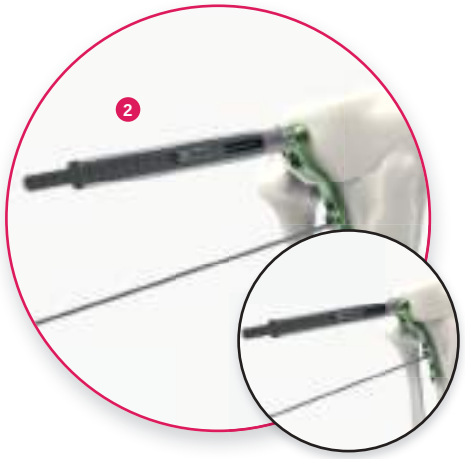
4. Lock the Ø4.0 mm drill guide (ANC998) into one of the three most proximal holes. Then, drill using the Ø4.0 mm drill bit (ANC211).

   N.B. *to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975







5. Determine the screw length directly at the rear of the Ø4.0 mm drill guide (ANC998) (1), or with the length gauge (ANC1899) (2). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.

   Then, insert a Ø4.5 mm locking screw(ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand.



ANC975

N.B. *To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw.*

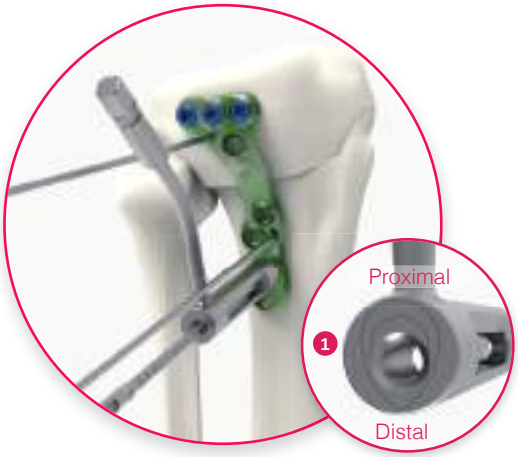


ANC120-US

6. Repeat the same procedure as steps 4 and 5 for the 2 remaining proximal screws.

LATERAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY SIZE 2 (PAGE 3/4)

→ OPTION 1: OBLIQUE CUT

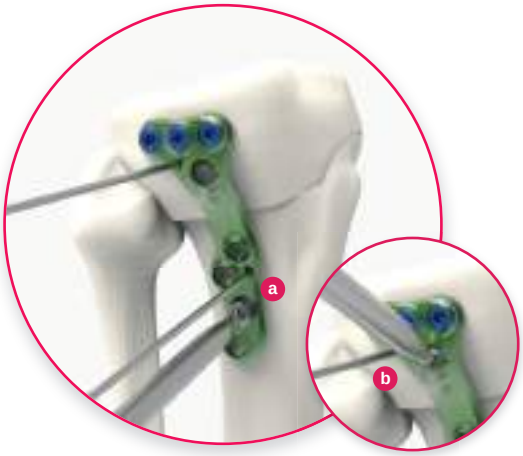


7. Drill into the **distal part of the oblong hole** using the dedicated drill guide (ANC1064) and the **Ø3.5 mm drill bit** (ANC1900). The orientation of the drill guide must be taken into account to allow compression (1).

   Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).



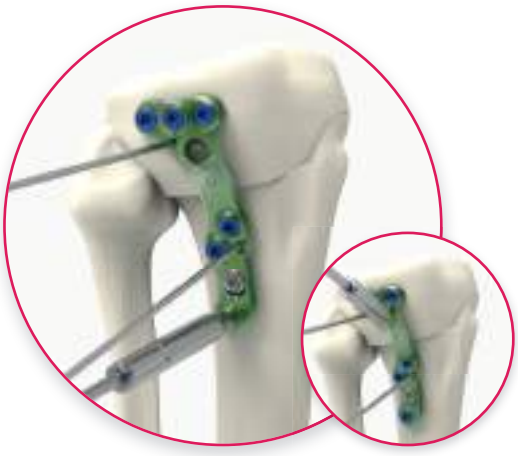
ANC1899



8. **Compression of the osteotomy**

   a. Insert a Ø4.5 mm standard cortical screw (CT4.5LxxD-ST) using the screwdriver (ANC975) and perform the compression through the ramp oblong hole.

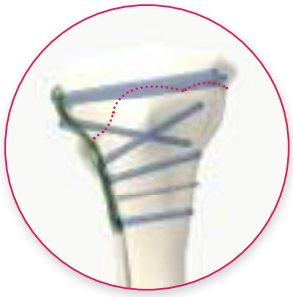
   b. Alternatively, a standard cortical screw can be inserted in the angulated hole to close and compress the osteotomy.



9. Repeat the same procedure as steps 4 and 5 for the remaining Ø4.5 mm locking screws (ST4.5LxxD-ST) in the distal holes. Do the same for the the insertion of the Ø4.5 mm locking screw (ST4.5LxxD-ST) in the remaing proximal hole situated above the osteotomy cut. The pins can then be removed.

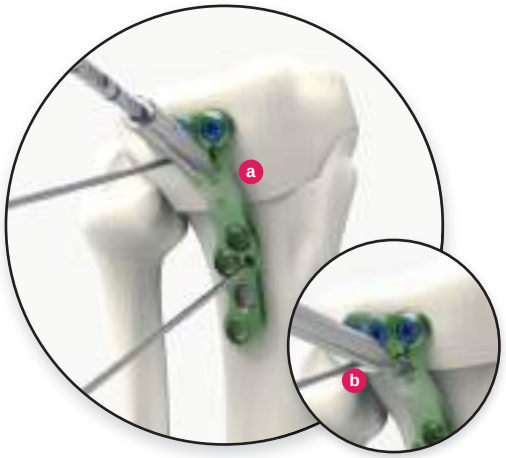


FINAL RESULT



LATERAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY SIZE 2 (PAGE 4 /4)

→ OPTION 2: HORIZONTAL CUT



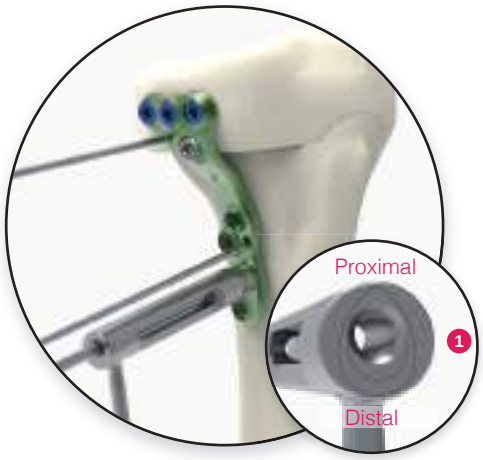
7. **Compression of the osteotomy**

a. Lock the Ø4.0 mm drill guide (ANC998) into the proximal hole situated above the osteotomy cut. Then, drill using the Ø3.5 mm drill bit (ANC1900).

b. Then, insert a Ø4.5 mm cortical screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



ANC975



8. Drill into the **proximal part of the oblong hole** using the dedicated drill guide (ANC1064) and the **Ø3.5 mm drill bit** (ANC1900). The orientation of the drill guide must be taken into account as the compression of the oblong hole is not used (1).

Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).

Insert a Ø4.5 mm standard cortical screw (CT4.5LxxD-ST) using the screwdriver (ANC975).



ANC975



9. **Improvement of the stability at the hinge with the oblique screw**

Repeat the same procedure as steps 4 and 5 for *(page 26)* the Ø4.5 mm locking screws (ST4.5LxxD-ST) in the remaining the distal holes. The pin can be removed during this step.



FINAL RESULT

TIBIAL SLOPE CHANGE OSTEOTOMY - SUPRA OR TRANS-TUBERCLE TECHNIQUE
(PAGE 1/3)

General comments:

- o In cases of concomitant ACL reconstruction the screw's direction is designed to leave space for the tibial ACL tunnel as desired.
- o In cases of concomitant ligament reconstruction it is either possible to do the osteotomy first followed by ligament reconstruction, or the other way round. If the ligament reconstruction is performed first, the entry point of the tibial tunnel should be cautiously chosen.
- o In cases of concomitant bone tunnel filling the plate can be positioned as desired. If the tunnels are planned to be filled with allogenic bone, it is recommended to perform the bone tunnel filling first and then the osteotomy.

1. Incision

A midline incision is created beginning at the inferior pole of the patella and extending distal to the tibial tubercle. Subperiosteal dissection is carried out medially underneath the superficial medial collateral ligament and laterally to the iliotibial band off Gerdy's tubercle.
Hohmann retractors on both sides of the tibia are used to maintain the exposure.







2. Depending on the surgeon's preference, when the ACL tunnel is performed first it is recommended to pre-position the plate temporarly to avoid the conflict between the plate and the tunnel. Depending on the tibial fixation device this should be kept in mind, especially when extra-cortical fixation is preferred. As the proximal screws of the plate diverge it is possible to slightly overlap the tibial tunnel and the plate. It is generally recommended that the final fixation of the ACL at the tibial side is performed after finishing the bony correction.

3.1. **Position of the cut if the tibial tuberosity is preserved:**

4 guide pins are driven from either side of the patellar tendon into the proximal tibia using fluoroscopy. 2 located at about 25mm distal the joint line, the others placed distally according the planned correction.
The pins are aimed toward the posterior aspect of the tibial plateau, just distal to the footprint of the posterior cruciate ligament, and advanced into the posterior tibial cortex.

The patellar tendon must be carefully protected. Then the osteotomy is performed. A short bi-planar cut is usually necessary to preserve the tendon.

3.2. **Position of the cut if a TTO is performed :**

Tibial tubercle osteotomy is performed using an oscillating saw to obtain a 1-cm thick and 5-cm long bone block and the tibial tubercle is everted proximally.

4 guide pins are placed in the proximal tibia, 2 located 5 cm distal to the joint line, the others placed distally according the planned correction.

The pins are aimed toward the posterior aspect of the tibial plateau, just distal to the footprint of the posterior cruciate ligament, and advanced into the posterior tibial cortex.

TIBIAL SLOPE CHANGE OSTEOTOMY - SUPRA OR TRANS-TUBERCLE TECHNIQUE (PAGE 2/3)

Example of the supra-tubercule surgical technique.The trans-tubercule follows the same steps.



4. The guide pins are then removed as well as the bone wedge.
   A 2-mm drill bit or the 2.2mm k-wires can be used to create several controlled perforations in the posterior cortex, facilitating atraumatic closure of the osteotomy.
   The knee is then gently brought into extension, closing the osteotomy. It is important to perform this maneuver carefully to minimize risk of fracturing the posterior cortex.



5. Position the plate onto the medial surface of the proximal tibia. It is important to ensure that the zone between the distal and proximal screws is located on the osteotomy site and that the proximal screws do not penetrate the joint. The plate can be temporarily held in position with two Ø2.2 mm pins (33.0222.200).
   The proximal pin must be positionned in the polyaxial hole, through a Ø4.0 mm drill guide (ANC998) + a reductor of drill guide for Ø2.2 mm pin (ANC1009). The distal pin must be positioned in the distal part of the oblong pin hole



6. Lock the Ø4.0 mm drill guide (ANC998) into the monoaxial hole above the osteotomy cut. Then, drill using the Ø4.0 mm drill bit (ANC211).

   N.B: to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).



ANC975







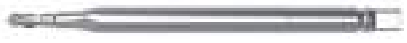
7. Determine the screw length directly at the rear of the Ø4.0 mm drill guide (ANC998) (1), or with the length gauge (ANC1899) (2). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.

   Then, insert a Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand.



ANC975

N.B. *To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.*



ANC120-US

8. Remove the Ø2.2 mm and the reductor in order to adjust the drilling direction, and avoid drilling through the tunnel.

   Then lock the Ø4.0 mm drill guide (ANC998) into the polyaxial hole. Before drilling, a Ø2.2 mm pin (33.022.200) can be inserted through the reductor of the drill guide (ANC1009).

   Start drilling using the Ø4.0 mm drill bit (ANC211). Repeat the step 7 to measure and insert the locking screw.

TIBIAL SLOPE CHANGE OSTEOTOMY - SUPRA OR TRANS-TUBERCLE TECHNIQUE
(PAGE 3/3)



9. Drill into the **distal part of the oblong hole** using the dedicated drill guide (ANC1064) and the **Ø3.5 mm drill bit** (ANC1900). The orientation of the drill guide must be taken into account to allow compression (3).

   Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).



ANC1899



10. Insert a Ø4.5 mm non-locking screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



11. Repeat the same procedure as the steps 6 and 7 to insert the remaining Ø4.5 mm locking screw (ST4.5LxxD-ST) into the hole under the osteotomy cut. The pins can then be removed.



FINAL RESULT
For a supra-tubercule technique



FINAL RESULT
For a trans-tubercule technique

TIBIAL SLOPE CHANGE OSTEOTOMY - INFRA-TUBERCLE TECHNIQUE (PAGE 1/3)

General comments:

- o In cases of concomitant ACL reconstruction the screw's direction is designed to leave space for the tibial ACL tunnel as desired.
- o In cases of concomitant ligament reconstruction it is either possible to do the osteotomy first followed by ligament reconstruction, or the other way round. If the ligament reconstruction is performed first, the entry point of the tibial tunnel should be cautiously chosen.
- o In cases of concomitant bone tunnel filling the plate can be positioned as desired. If the tunnels are planned to be filled with allogenic bone, it is recommended to perform the bone tunnel filling first and then the osteotomy.

1. Incision

As this technique is often performed in revision surgery there might already be different kinds of incision. These can be used or lengthend depending on individual circumstances. Generally in primary cases, a paramedian incision (1 cm medial to the medial border of the tuberosity) of 4-7 cm is recommended. Subcutaneus dissection is carried out straight to the bone. Further, a preparation of the tuberosity and exposure of the lateral side of the tuberosity is performed. In cases of harvesting of the ipsilateral hamstring tendons this can be done with this incision, and should be carried out first. On the medial side, the sMCL is located. Further preparation is performed to slightly loosen but not to detach the sMCL for later insertion of a radiolucent Hohmann-retractor between the sMCL and the bone in the direction of the planned cut directing upwards. On the lateral side the proximal end of the anterior muscular compartment is exposed. The very proximal ending is slightly detached from the bone in the direction of the later osteotomy cut, so that it can be protected later by another retractor.
Hohmann retractors on both sides of the tibia are used to maintain the exposure, protecting the MCL medially and the muscular anterior compartment laterally.



2. Depending on the surgeon's preference, when the ACL tunnel is performed first it is recommended to pre-position the plate temporarly to avoid the conflict between the plate and the tunnel. Depending on the tibial fixation device this should be kept in mind, especially when extra-cortical fixation is preferred. As the proximal screws of the plate diverge it is possible to slightly overlap the tibial tunnel and the plate. It is generally recommended that the final fixation of the ACL at the tibial side is performed after finishing the bony correction.





3. For the osteotomy a straight lateral fluoroscopy is needed. The medial and lateral tibial plateau should be perfectly overlapping with regard to the joint surface and the posterior tibial edge. This position for fluoroscopy should be kept for the whole further surgical procedure.

Two or four guide pins are inserted in the osteotomy planes to mark the wedge. In this infratuberositary approach the insertion point of the proximal K-wire(s) should be carefully chosen to not damage the distal insertion of the patellar tendon. Careful exposure is needed. It is recommended to keep a minimum distance of 5-10 mm to the distal insertion of the patellar tendon. It is recommended to pre-operatively look at MRI together with lateral X-ray to know where the patellar tendon exactly inserts. The first guide is inserted from the most anterior point on the tuberosity (usually on the medial border of the tuberosity) aiming at the hinge point. **The hinge of the osteotomy should be at the tibial insertion of the posterior cruciate ligament.**

The second K-wire is placed distally according the planned correction. The wires are drilled obliquely in the proximal tibia to reach the posterior hinge point and under fluoroscopic control. If four pins are used the two additional K-wires should be placed 1-2cm more medially and should be completely projected on top of each other.

The osteotomy is performed with Hohmann retractors to protect the MCL and the lateral structures. The osteotomy cuts should be completely parallel to avoid gapping after closing.

The surgeon should endeavor to leave the posterior cortex intact.

The bony wedge is then removed with the K-wires still in place.

A 2-mm drill bit or the 2.2mm k-wires can be used to create several controlled perforations in the posterior cortex, facilitating atraumatic closure of the osteotomy.

The knee is then gently brought into extension, closing the osteotomy. It is important to perform this maneuver carefully to minimize risk of fracturing the posterior cortex.

TIBIAL SLOPE CHANGE OSTEOTOMY - INFRA-TUBERCLE TECHNIQUE (PAGE 2/3)



4. Position the plate onto the antero-medial surface of the proximal tibia. It is important to ensure that the zone between the distal and proximal screws is located on the osteotomy site and that the proximal screws do not penetrate the joint.

   The plate can be temporarily held in position with two Ø2.2 mm pins (33.022.200). **The distal pin must be positioned in the distal part of the oblong pin hole.**





5. Lock the Ø4.0 mm drill guide (ANC998) into the more poximal hole above the osteotomy cut. Then, drill using the Ø4.0 mm drill bit (ANC211).

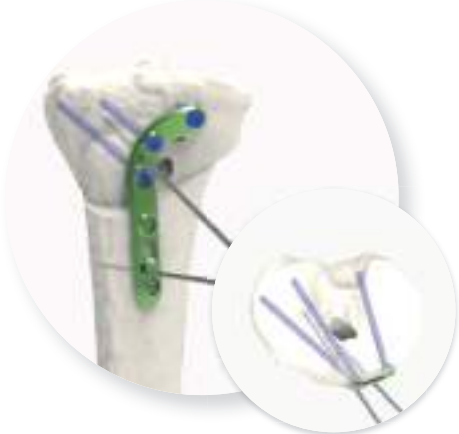
   A pre-visualisation of the screw positioning is possible with a k-wire insertion through the reductor of the drill guide (1).

   N.B: to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).


ANC975







6. Determine the screw length directly at the rear of the Ø4.0 mm drill guide (ANC998) (2), or with the length gauge (ANC1899) (3). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.

   Then, insert a Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand.


ANC975

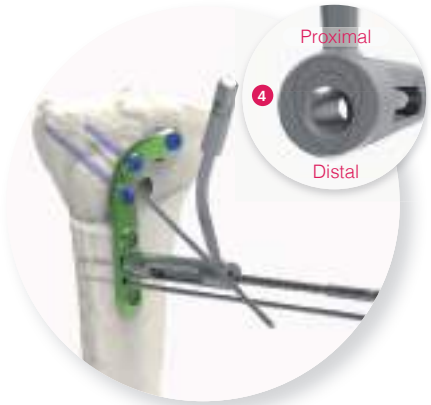
N.B. *To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.*


ANC120-US

7. Proceed similarly to steps 5 and 6 for the insertion of the Ø4.5 mm locking screws (ST4.5LxxD-ST) into the 2 holes situated above the osteotomy cut.

   Ensure there is no conflict with the tunnel or the osteotomy cut.

TIBIAL SLOPE CHANGE OSTEOTOMY - INFRA-TUBERCLE TECHNIQUE (PAGE 3/3)

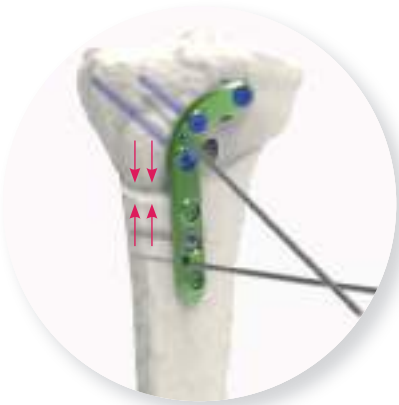


8. Drill into the **distal part of the oblong hole** using the dedicated drill guide (ANC1064) and the **Ø3.5 mm drill bit** (ANC1900). The orientation of the drill guide must be taken into account to allow compression (4).

   Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).



ANC1899



9. Insert a Ø4.5 mm non-locking screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



10. Repeat the same procedure as the steps 5 and 6 to insert the remaining Ø4.5 mm locking screws (ST4.5LxxD-ST) in the hole situated under the osteotomy cut. The pins can then be removed.



FINAL RESULT

MEDIAL CLOSING WEDGE DISTAL FEMORAL OSTEOTOMY (PAGE 1/2)



1. **Perform the osteotomy:**
   Start the first cut approximately at 5 mm above the patella groove. The cut should end around 10 mm from the lateral cortical bone.

   It is recommended to position a third pin in the opposite cortex to strengthen your hinge and prevents for cutting further.



2. Perform the proximal 2nd cut by using the cutting guide (*see page 14 on how to use the guide*):
   - Set the chosen correction angle on the cutting guide (ANC014-1 / ANC014-2).
   - Insert the blade of the cutting guide into the first cut.
   - Perform the second osteotomy in the cutting slot with an oscillating saw.

   Remove the bone wedge and make sure that every residual bone fragment has been removed from the osteotomy.

   Then, remove the hinge pin and carefully close the osteotomy by applying continuous pressure to the lateral lower limb while stabilizing the knee joint region.



3. Position the plate onto the medial surface of the distal femur. The polyaxial hole must be positioned around 1 cm above the insertion of the medial collateral ligament.

   It is important to ensure that the bridge area of the plate is located onto the osteotomy site and that the distal screws do not penetrate the joint.







4. Lock the first Ø4.0 mm drill guide (ANC998) into the hole situated below the osteotomy cut, drill using the Ø4.0 mm drill bit (ANC211). Determine the screw length directly on the drill (1), at the rear of the drill guide or with the length gauge (ANC1899) (2). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.

   N.B. *to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975

5. Insert the Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand.

   Repeat this procedure with the 2 other distal monoaxial holes.

   N.B. *To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert again the screw.*



ANC120-US

MEDIAL CLOSING WEDGE DISTAL FEMORAL OSTEOTOMY (PAGE 2/2)



6. Insert a Ø2.2 mm pin (33.0222.200) into the **proximal part of the oblong hole for pin**. Drill into the **proximal part of the ramp oblong hole** using the dedicated drill guide (ANC1064) and the Ø3.5 mm drill bit (ANC1900). The orientation of the drill guide must be taken into account to allow compression (1).

   Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).



ANC1899

Insert a Ø4.5 mm standard cortical screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



ANC975

Then remove the Ø2.2 mm pin.



7. Proceed similarly to step 4 for the insertion of the Ø4.5 mm locking screws (ST4.5LxxD-ST) into the 2 holes situated above the osteotomy cut.



8. Lock the Ø4.0 mm drill guide (ANC998) into the polyaxial hole. If necessary, adjust the drilling direction in order to avoid the intercondylar notch. Before drilling, a pin can be inserted through the reductor of the drill guide (ANC1009) (1).

   Start drilling using the Ø4.0 mm drill bit (ANC211). Determine the screw length directly on the drill, at the rear of the drill guide or with the length gauge (ANC1899). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.



ANC1899

Then, insert the Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975).



ANC975



FINAL RESULT

Repeat the previous steps to insert the remaining Ø4.5 mm locking screws situated on the proximal part of the plate.

LATERAL OPENING WEDGE DISTAL FEMORAL OSTEOTOMY (PAGE 1/2)



1. Perform the osteotomy using an oscillating saw: the cut starts 30 mm from the insertion of the lateral ligament and ends at around 10 mm from the medial cortex.

   It is recommended to position a third pin in the opposite cortex to strengthen your hinge and prevents for cutting further.



2. Insert wedges of increasing sizes until finding the appropriate one (4 - 18 mm) while maintaining the medial surface of the femur. Once the appropriate wedge has been inserted, the angular correction is maintained during osteosynthesis.

   Alternatively, chisels or the meary pliers can be used to increase the size of the opening *(see page 14 for more information)*.



3. Position the plate onto the lateral surface of the distal femur. The polyaxial hole must be positioned at the level of the insertion of the lateral collateral ligament.



4. Stabilize the plate using the pins (33.0222.200). Insert the first pin on the distal part (1). Then, insert the second pin on the proximal part (2) so that the plate is placed alongside the femoral diaphysis.



5. Lock the first Ø4.0 mm drill guide (ANC998) in the hole under the osteotomy cut, then start drilling using the Ø4.0 mm drill bit (ANC211).

   N.B. *to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975



6. Remove the drill guide and then insert and lock the Ø4.5 mm screw (ST4.5LxxD-ST) the screw using the screwdriver (ANC975). Final tightening of the screws must be performed by hand.

   N.B. *to ease the insertion of the screws, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.*



ANC120-US

LATERAL OPENING WEDGE DISTAL FEMORAL OSTEOTOMY (PAGE 2/2)







7. Proceed similarly for the insertion of the screw into the hole situated above the osteotomy cut.

   Then, remove the two pins.

8. Lock the Ø4.0 mm drill guide (ANC998) into the polyaxial hole. If necessary, adjust the drilling direction in order to avoid the intercondylar notch. Before drilling, a pin can be inserted through the reductor of the drill guide (ANC1009) (1). Start drilling using the Ø4.0 mm drill bit (ANC211). Determine the screw length directly on the drill, at the rear of the drill guide or with the length gauge (ANC1899). When reading the screw length on the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.



ANC1899

Then, insert the Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975).



ANC975



FINAL RESULT

Repeat previous steps to insert the remaining Ø4.5 mm locking screws. The construct is complete when the metallic wedge.

FEMORAL DEROTATION OSTEOTOMY (PAGE 1/2)

Example of the surgical technique for the medial derotation and closing plate (JCTxM1D). The lateral derotation and closing plate (JCTxL1D) follows the same steps.

1. The incision is made along the longitude axis of the distal femur on the medial thigh. The subcutaneous tissue and fascia are carefully separated. A straight-line incision is made along the posterior border of the adductor magnus tendon. Identify the anterior edge of the sartorius muscle and retract it posteriorly.

   Retract adductor magnus muscle and tendon posteriorly and retract the vastus medialis anteriorly to expose the femur.

2. Two guide K-wires are inserted under fluoroscopy to be parallel to the knee joint line. It is recommended to pre-position temporarly the plate to ensure that the bridge area of the plate is located onto the osteotomy site.

   Two K-wires are inserted into both sides of the osteotomy line as landmarks for the rotation degree.

   The osteotomy is performed, the distal femur is externally rotated according the pre-planification to adjust the rotational alignments of the patellofemoral joint







3. Position the plate onto the medial surface of the distal femur. The polyaxial hole must be positioned around 1cm above the insertion of the medial collateral ligament.

   It is important to ensure that the bridge area of the plate is located onto the osteotomy site and that the distal screws do not penetrate the joint.

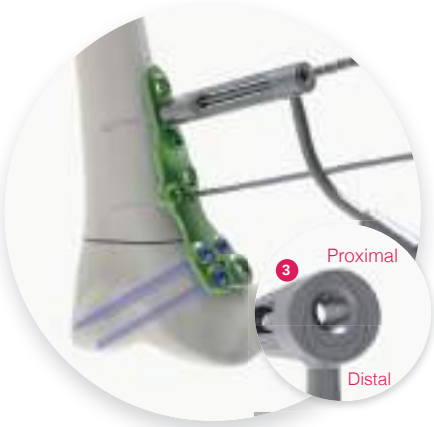
4. Lock the Ø4.0 mm drill guide (ANC998) into the hole below the osteotomy cut. Then, drill using the Ø4.0 mm drill bit (ANC211). Determine the screw length directly on the drill (1) at the rear of the drill guide, or whith a length gauge (ANC1899) (2). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3mm to the markings read.

   N.B.: *To help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).*



ANC975







5. Then, insert a Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand.

   Reapeat steps 4 and 5 for the 2 other distal monoaxial holes.

   N.B.: *To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.*



ANC120-US

6. Insert a Ø2.2mm pin (33.0222.200) into the proximal part of the oblong hole for pin. Drill into the proximal part of the ramp oblong hole using the dedicated drill guide (ANC1064) and the Ø3.5 mm drill bit (ANC1900). The orientation of the drill guide must be taken into account to allow compression (3).

   Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899).



ANC1899

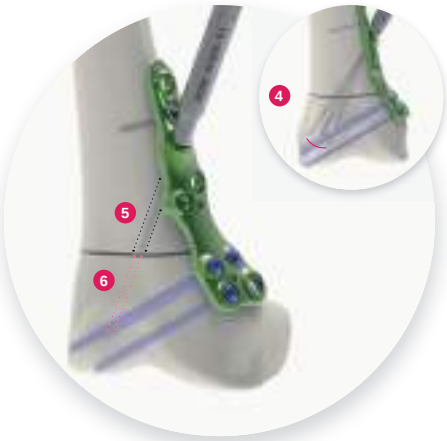
Insert a Ø4.5 mm non locking screw (CT4.5LxxD-ST) and perform the compression unsig the screwdriver (ANC975).



ANC975

Then remove the Ø2.2 mm pin.

FEMORAL DEROTATION OSTEOTOMY (PAGE 2/2)



7. Insert the Ø4.0 mm dril guide (ANC998) into the proximal oblique hole. Choose the best angulation to adapt to the bone width (4). Drill using the Ø4mm drill bit (ANC211) into the proximal part of the osteotomy cut (5). Complete the drilling into the distal part of the osteotomy, with the Ø3.5 mm drill bit (ANC1900) (6).



8. Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC1899). When using the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3mm to the markings read.



ANC1899

Insert a Ø4.5 mm non-locking screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



ANC975



9. Proceed similarly to steps 4 and 5 for the insertion of the Ø4.5 mm locking screws (ST4.5LxxD-ST) into the 3 remaining proximal holes.







FINAL RESULT

10. Lock the Ø4.0 mm drill guide (ANC998) into the polyaxial hole. If necessary, adjust the drilling direction in order to avoid the intercondylar notch. Before drilling, a pin can be inserted through the reductor of the drill guide (ANC1009).

    Start drilling using the Ø4.0 mm drill bit (ANC211). Determine the screw length directly on the drill, at the rear of the drill guide or with the length gauge (ANC1899). When reading the screw length on the length gauge (ANC1899) in the epiphyseal part of the bone, please add 3 mm to the markings read.



ANC1899

Then, insert the Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975).



ANC975

IMPLANT REFERENCES

OPENING WEDGE TIBIAL PLATES

Ref.	Description
ATGP1D-ST	Medial opening HTO plate - Left - Size 1 - STERILE
ATDP1D-ST	Medial opening HTO plate - Right - Size 1 - STERILE
ATGP2D-ST	Medial opening HTO plate - Left - Size 2 - STERILE
ATDP2D-ST	Medial opening HTO plate - Right - Size 2 - STERILE
ALTGP1D-ST	Medial opening HTO + Ligamentoplasty plate - Left - Size 1 - STERILE
ALTDP1D-ST	Medial opening HTO + Ligamentoplasty plate - Right - Size 1 - STERILE
AETGP1D-ST	Medial opening HTO + Ligamentoplasty & button plate - Left - Size 1 - STERILE
AETDP1D-ST	Medial opening HTO + Ligamentoplasty & button plate - Right - Size 1 - STERILE


ATGP1D-ST ATDP1D-ST


ATGP2D-ST ATDP2D-ST


ALTGP1D-ST ALTDP1D-ST


AETGP1D-ST AETDP1D-ST

CLOSING WEDGE TIBIAL PLATES

Ref.	Description
BTGBD1D-ST	Lateral closing HTO plate - Left - Size 1 - STERILE
BTDBD1D-ST	Lateral closing HTO plate - Right - Size 1 - STERILE
BTGBD2D-ST	Lateral closing HTO plate - Left - Size 2 - STERILE
BTDBD2D-ST	Lateral closing HTO plate - Right - Size 2 - STERILE
BTGMD1D-ST	Medial closing HTO plate - Left - Size 1 - STERILE
BTDMD1D-ST	Medial closing HTO plate - Right - Size 1 - STERILE
BTGMD2D-ST	Medial closing HTO plate - Left - Size 2 - STERILE
BTDMD2D-ST	Medial closing HTO plate - Right - Size 2 - STERILE


BTGBD1D-ST BTDBD1D-ST


BTGBD2D-ST BTDBD2D-ST


BTGMD1D-ST BTDMD1D-ST


BTGMD2D-ST BTDMD2D-ST

DISTAL FEMORAL PLATES

Ref.	Description
JATGL1D-ST	Lateral opening DFO plate - Left - Size 1 - STERILE
JATDL1D-ST	Lateral opening DFO plate - Right - Size 1 - STERILE
JBTGM1D-ST	Medial closing DFO plate - Left - Size 1 - STERILE
JBTDM1D-ST	Medial closing DFO plate - Right - Size 1 - STERILE


JATGL1D-ST JATDL1D-ST


JBTGM1D-ST JBTDM1D-ST

IMPLANT REFERENCES

DEFLEXION OSTEOTOMY PLATES

Ref.	Description
BATGMD1D-ST	Anterior closing HTO plate - Left - Size 1 - STERILE
BATDMD1D-ST	Anterior closing HTO plate - Right - Size 1 - STERILE
BATGMD2D-ST	Anterior closing HTO plate - Left - Size 2 - STERILE
BATDMD2D-ST	Anterior closing HTO plate - Right - Size 2 - STERILE



BATGMD1D-ST BATDMD1D-ST



BATGMD2D-ST BATDMD2D-ST

DISTAL FEMORAL DEROTATION OSTEOTOMY PLATES

Ref.	Description
JCTGM1D-ST	Medial derotation and closing DFO plate - Left - Size 1 - STERILE
JCTDM1D-ST	Medial derotation and closing DFO plate - Right - Size 1 - STERILE
JCTGL1D-ST	Lateral derotation and closing DFO plate - Left - Size 1 - STERILE
JCTDL1D-ST	Lateral derotation and closing DFO plate - Right - Size 1 - STERILE



JCTGM1D-ST JCTDM1D-ST



JCTGL1D-ST JCTDL1D-ST

SCREW REFERENCES



Ø4.5 MM REINFORCED CORE LOCKING SCREWS*

Ref.	Description
ST4.5L15D-ST	Ø4.5 mm reinforced core locking screw - L15 mm - STERILE **
ST4.5L18D-ST	Ø4.5 mm reinforced core locking screw - L18 mm - STERILE **
ST4.5L21D-ST	Ø4.5 mm reinforced core locking screw - L21 mm - STERILE **
ST4.5L24D-ST	Ø4.5 mm reinforced core locking screw - L24 mm - STERILE
ST4.5L27D-ST	Ø4.5 mm reinforced core locking screw - L27 mm - STERILE
ST4.5L30D-ST	Ø4.5 mm reinforced core locking screw - L30 mm - STERILE
ST4.5L35D-ST	Ø4.5 mm reinforced core locking screw - L35 mm - STERILE
ST4.5L40D-ST	Ø4.5 mm reinforced core locking screw - L40 mm - STERILE
ST4.5L45D-ST	Ø4.5 mm reinforced core locking screw - L45 mm - STERILE
ST4.5L50D-ST	Ø4.5 mm reinforced core locking screw - L50 mm - STERILE
ST4.5L55D-ST	Ø4.5 mm reinforced core locking screw - L55 mm - STERILE
ST4.5L60D-ST	Ø4.5 mm reinforced core locking screw - L60 mm - STERILE
ST4.5L65D-ST	Ø4.5 mm reinforced core locking screw - L65 mm - STERILE
ST4.5L70D-ST	Ø4.5 mm reinforced core locking screw - L70 mm - STERILE
ST4.5L75D-ST	Ø4.5 mm reinforced core locking screw - L75 mm - STERILE
ST4.5L80D-ST	Ø4.5 mm reinforced core locking screw - L80 mm - STERILE
ST4.5L85D-ST	Ø4.5 mm reinforced core locking screw - L85 mm - STERILE
ST4.5L90D-ST	Ø4.5 mm reinforced core locking screw - L90 mm - STERILE

* Blue anodized
** Optional

For more information about the **Initial K Hinge Screw** (including the references), please refer to the **Initial K - Hinge Screw brochure**.



Ø4.5 MM NON-LOCKING SCREWS*

Ref.	Description
CT4.5L24D-ST	Ø4.5 mm non-locking screw - L24 mm - STERILE
CT4.5L27D-ST	Ø4.5 mm non-locking screw - L27 mm - STERILE
CT4.5L30D-ST	Ø4.5 mm non-locking screw - L30 mm - STERILE
CT4.5L35D-ST	Ø4.5 mm non-locking screw - L35 mm - STERILE
CT4.5L40D-ST	Ø4.5 mm non-locking screw - L40 mm - STERILE
CT4.5L45D-ST	Ø4.5 mm non-locking screw - L45 mm - STERILE
CT4.5L50D-ST	Ø4.5 mm non-locking screw - L50 mm - STERILE
CT4.5L55D-ST	Ø4.5 mm non-locking screw - L55 mm - STERILE
CT4.5L60D-ST	Ø4.5 mm non-locking screw - L60 mm - STERILE
CT4.5L65D-ST	Ø4.5 mm non-locking screw - L65 mm - STERILE
CT4.5L70D-ST	Ø4.5 mm non-locking screw - L70 mm - STERILE
CT4.5L75D-ST	Ø4.5 mm non-locking screw - L75 mm - STERILE
CT4.5L80D-ST	Ø4.5 mm non-locking screw - L80 mm - STERILE
CT4.5L85D-ST	Ø4.5 mm non-locking screw - L85 mm - STERILE
CT4.5L90D-ST	Ø4.5 mm non-locking screw - L90 mm - STERILE
CT4.5L95D-ST	Ø4.5 mm non-locking screw - L95 mm – STERILE
CT4.5L100D-ST	Ø4.5 mm non-locking screw – L100 mm - STERILE
CT4.5L105D-ST	Ø4.5 mm non-locking screw – L105 mm - STERILE
CT4.5L110D-ST	Ø4.5 mm non-locking screw – L110 mm – STERILE

* Not anodized

COMPATIBLE WITH PATIENT SPECIFIC INSTRUMENTATION (PSI)



Please contact your NEWCLIP TECHNICS representative if you have questions about the availability of NEWCLIP TECHNICS products in your area.

INSTRUMENT REFERENCES

INSTRUMENTS

Ref.	Description	Qty
ANC014-1	Osteotomy cutting guide - Part 1	1
ANC014-2	Osteotomy cutting guide - Part 2	1
ANC1069	Wedge for osteotomy - 4 mm high	1
ANC019	Wedge for osteotomy - 6 mm high	1
ANC020	Wedge for osteotomy - 8 mm high	1
ANC021	Wedge for osteotomy - 10 mm high	1
ANC022	Wedge for osteotomy - 12 mm high	1
ANC023	Wedge for osteotomy - 14 mm high	1
ANC025	Wedge for osteotomy - 16 mm high	1
ANC860	Wedge for osteotomy - 18 mm high	1
ANC024	Handle for wedges and osteotomy cutting guide	2
ANC120-US	Ø4.2 mm countersink with US quick coupling system	1
ANC1899	Length gauge for Ø4.5 mm screws	1
ANC211	Ø4.0 mm quick coupling drill bit	3
ANC214	Soft tissues protector	1
ANC352	Ø6 mm US quick coupling handle	2
ANC649	Spacer Ø8 mm for HTO with ligamentoplasty	1
ANC601	Spacer Ø10 mm for HTO with ligamentoplasty	1
ANC621	Chisel Pauwels - 10*240 mm	1
ANC622	Chisel Pauwels - 25*240 mm	1
ANC628	Chisel Pauwels - 15*240 mm	1
ANC629	Chisel Pauwels - 20*240 mm	1
ANC975	T20 screwdriver with US quick coupling system	2
ANC980	T20 screwdriver with AO quick coupling system	1
ANC990	Osteotomy Meary pliers	1
ANC998	Ø4.0 mm threaded guide gauge for Ø4.5 mm screws	3
ANC1009	Reductor of drill guide for Ø2.2 mm pin	2
ANC1064	Ø3.5 mm non threaded bent guide gauge	1
ANC1070/B	Activmotion S instrumentation set - Base	1
ANC1070/C	Activmotion S instrumentation set - Lid	1
ANC1070/I	Activmotion S instrumentation set - Insert	1
ANC1900	Ø3.5 mm quick coupling drill bit - L215 mm	2
33.0222.200	Pin Ø2.2 L200 mm	6

OPTIONAL INSTRUMENTS

Ref.	Description	Qty
ANC620	Ø2.2 mm pin guide	1
ANC652	HTO Alignment rod	3
ANC653	Support for HTO alignment rod	1
ANC1063	Ø4 mm mini invasive threaded guide gauge	2
ANC1065	Ø4.0 mm quick coupling drill bit - L 225 mm	2
ANC1066	Osteotomy Meary pliers	1
ANC1088	Metallic wedge for osteotomy - Narrow - 4 mm high	1
ANC1089	Metallic wedge for osteotomy - Narrow - 6 mm high	1
ANC1090	Metallic wedge for osteotomy - Narrow - 8 mm high	1
ANC1091	Metallic wedge for osteotomy - Narrow - 10 mm high	1
ANC1092	Metallic wedge for osteotomy - Narrow - 12 mm high	1
ANC1093	Metallic wedge for osteotomy - Narrow - 14 mm high	1
ANC1119	Metallic wedge for osteotomy - Narrow - 16 mm high	1
ANC1120	Metallic wedge for osteotomy - Narrow - 18 mm high	1

OPTIONAL BONE SUBSTITUTES

Ref.	Description	Qty
0106C01	Rounded wedge 06 mm	1
0108C01	Rounded wedge 08 mm	1
0110C01	Rounded wedge 10 mm	1
0112C01	Rounded wedge 12 mm	1
1414C01	Rounded wedge 14 mm	1

Manufacturer: BIOMATLANTE (FRANCE)
Class: III
Notified body: TÜV SÜD - CE 0123



01xxC01

PLATES AND SCREWS REMOVAL

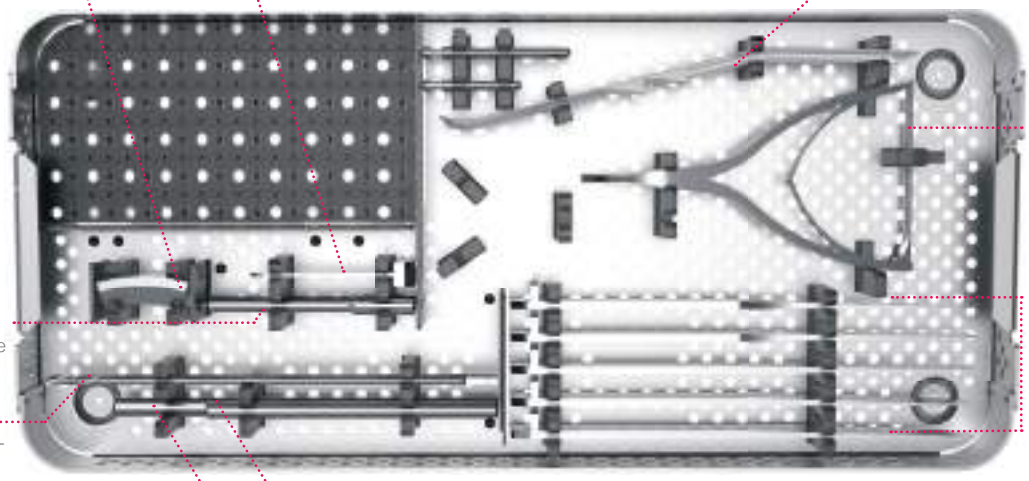
If you have to remove Activmotion S implants, make sure to order the **Newclip Technics removal set** which includes the following instruments:
- ANC042: Mini set - Base
- ANC352: Ø6 mm US quick coupling handle
- ANC1659: Ø6 mm US quick coupling T - handle
- ANC1894: T20 screwdriver with US quick coupling system

To remove any of the Activmotion S plates, first loosen all the screws without completely removing them (this prevents rotation of the plate when removing the last screw). Finally, completely remove all screws and the plate.

An **extraction set** can also be ordered separately.

Patient Specific Instruments (PSI) are also available. For more information, please do not hesitate to get in touch with our customer service.

KIT DESCRIPTION



ANC014-2 Osteotomy cutting guide - Part 2

ANC014-1 Osteotomy cutting guide - Part 1

ANC214 Soft tissues protector

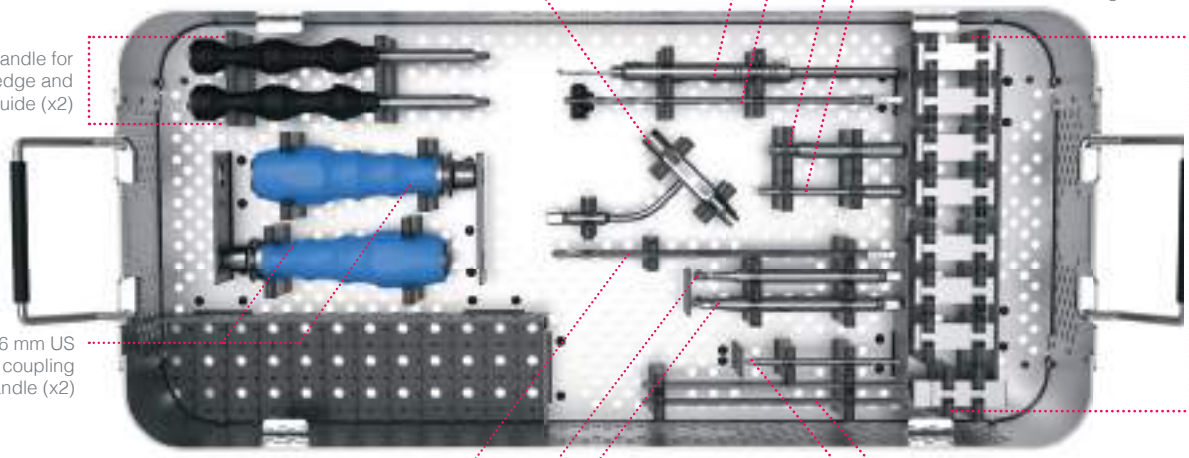
ANC990 Osteotomy Meary pliers

ANC1063 Ø4 mm mini invasive threaded guide gauge (x2)

ANC1065 Ø4.0 mm quick coupling drill bit - L225 mm (x2)

Chisel Pauwels
ANC621 (10*240 mm)
ANC622 (25*240 mm)
ANC628 (15*240 mm)
ANC629 (20*240 mm)

Spacer for HTO with ligamentoplasty
ANC601 (Ø10 mm)
ANC649 (Ø8 mm)



ANC1899 Length gauge for Ø4.5 mm screws

ANC1900 Ø3.5 mm quick coupling drill bit - L215 mm (x2)

ANC998 Ø4.0 mm threaded guide gauge for Ø4.5 mm screws (x3)

ANC1009 Reductor of drill guide for Ø2.2 mm pin (x2)

ANC1064 Ø3.5 mm non threaded bent guide gauge

ANC024 Handle for metallic wedge and cutting guide (x2)

Wedge for osteotomy
ANC1069 (4 mm)
ANC019 (6 mm)
ANC020 (8 mm)
ANC021 (10 mm)
ANC022 (12 mm)
ANC023 (14 mm)
ANC025 (16 mm)
ANC860 (18 mm)

ANC352 Ø6 mm US quick coupling handle (x2)

ANC211 Ø4.0 mm quick coupling drill bit (x3)

33.0222.200 Pin Ø2.2 L200 mm (x6)

ANC120-US Ø4.2 mm countersink with US quick coupling system

ANC980 T20 screwdriver with AO quick coupling system

ANC975 T20 screwdriver with US quick coupling system (x2)



ANC1070/C Activmotion S instrumentation set - Lid

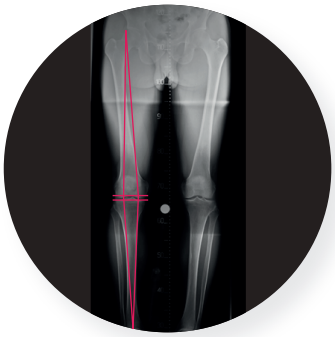
ANC1070/I Activmotion S instrumentation set - Insert

ANC1070/B Activmotion S instrumentation set - Base

CLINICAL CASES

→ CASE 1: MEDIAL TIBIAL OPENING WEDGE SIZE 1

Patient: 60 year old man



Preoperative planning





Post op imaging: day 1



Postoperative : 3 months

→ CASE 2: MEDIAL TIBIAL OPENING WEDGE SIZE 2





Preoperative xray





Postoperative xray

→ CASE 3: HTO & ACL





Preoperative xray





Postoperative xray

BIBLIOGRAPHY

(1) Adding a protective screw improves hinge's axial and torsional stability in High Tibial Osteotomy

Christophe Jacquet[a,d], Auriane Marret[d], Robin Myon[d], Matthieu Ehlinger[b], Nadia Bahlouli[c], Adrian Wilson[d], Kristain Kley[a], Jean-Marie Rossi[a,d,e], Sebastien Parratte[d], Matthieu Ollivier[a,d].

a Institute of Movement and locomotion Department of Orthopedics and Traumatology, St Marguerite Hospital, 270 Boulevard Sainte Marguerite, BP 29 13274 Marseille, France
b Service de Chirurgie Orthopédique et de Traumatologie, CHU Hautepierre, Hôpital de Hautepierre, Hôpitaux Universitaires de Strasbourg, 1 Avenue Molière, 67098 Strasbourg Cedex, France
c Laboratoire ICube iut de haguenau, 2 rue Boussingault, FR-67000 Strasbourg, France
d Aix Marseille Univ, APHM, CNRS, ISM, Sainte-Marguerite Hospital, Institute for Locomotion, Department of Orthopedics and Traumatology, Marseille, France
e Centrale Marseille, 13451 Marseille Cedex 20, France

This information is intended to demonstrate the Newclip Technics portfolio of medical devices. Always refer to the package insert, product label and/or user instructions including cleaning and sterilization before using any Newclip Technics product. These products must be handled and/or implanted by trained and qualified staff who have read the instructions before use. A surgeon must always rely on her or his own professional clinical judgement when deciding whether to use a particular product when treating a particular patient. Product availability is subject to the regulatory or medical practices that govern individual markets. Please contact your Newclip Technics representative if you have questions about the availability of Newclip Technics products in your area.

Manufacturer : Newclip Technics – Brochure EN – Activmotion S – ED14 – 10/2026 - Medical device EC: class IIb – CE1639 SGS BE
Read labelling and instructions before the use of Newclip Technics medical devices. These products must be handled and/or implanted by trained and qualified staff who have read the instructions before use. Non-contractual pictures.
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