

The BLF - Biotech Long A/R Femoral Nail

Surgical Technique



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BIOTECH

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“Movement is Life”

PROXIMAL TARGETING

Assembling of the nail and the targeting device

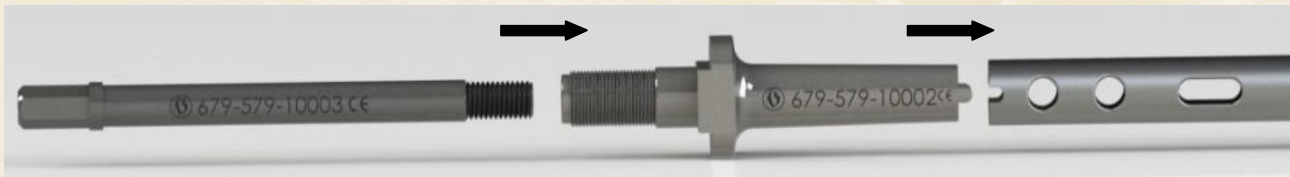
- On the basis of the pre-operative measurements, the femoral nail of the right length and thickness is chosen. 1.pic



1.

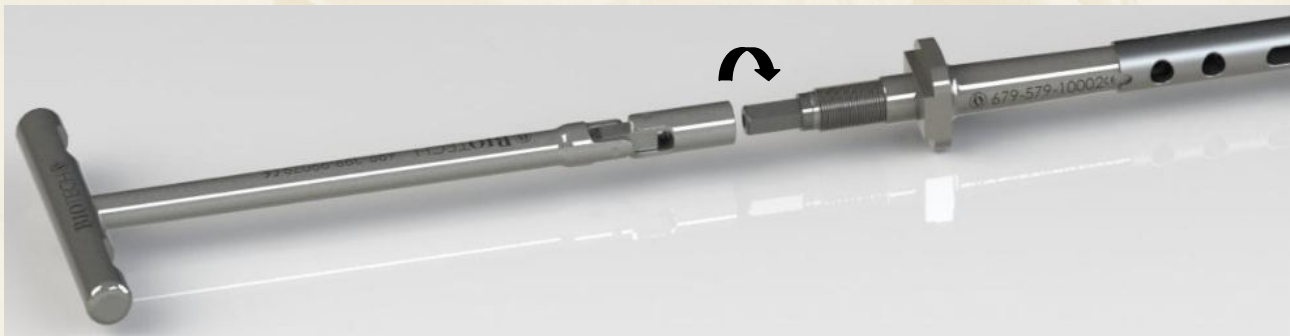
This two holes $\text{\O} 6,7\text{mm}$ (used $\text{\O} 6,5$ Locking Bone Screw)

- In the first step, fit the driver bushing on to the nail (679-579-10002), and then fix them together with the help of the driver bolt.(679-579-10003) 2.pic



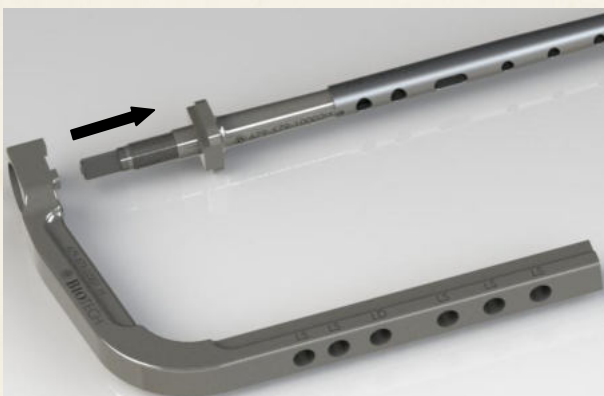
2.

- Tighten the driver bolt using wrench (699-399-99079). 3.pic

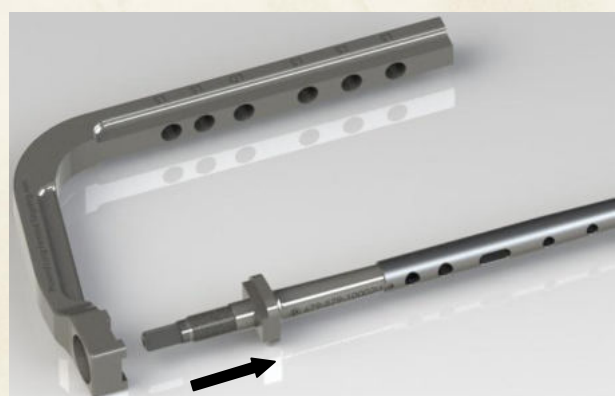


3.

- After that, place the base targeting arm on the driver bushing (679-579-22201) - 4.a pic. right side, 4.b pic. left side -



4.a

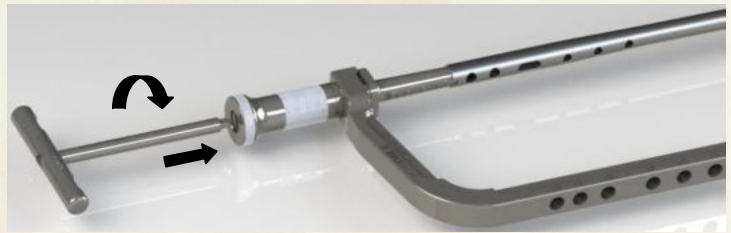


4.b

- After that, turn on the Nail Impactor on the base targeting arm and tighten used T wrench (699-399-99104) 5, 6 pic.



5.



6.

Insertion of the Intramedullary nail - The anteroquad approach

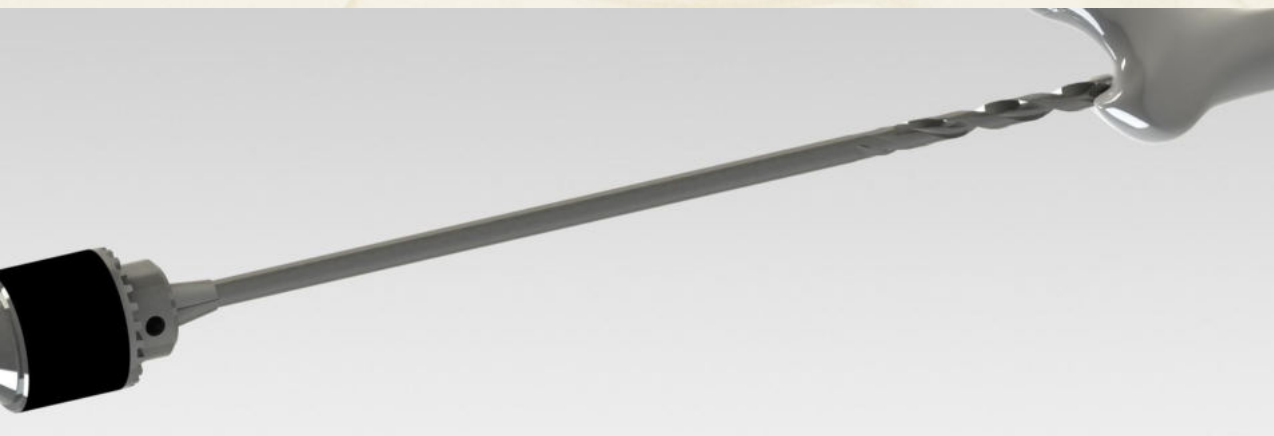
- For an anteroquad insertion, cut a little incision proximally to the Trochanter Major, and then advance bluntly until reaching the tip of the Trochanter Major and the femoral neck.
- The opening of the intramedullary canal should be continued on this same line, a bit medially to the Trochanter Major tip either by using a sharp awl directly, or by using a drill first and then using a sharp awl to widen the opening. 7, 8, 9. pic.



7.



8.



9.

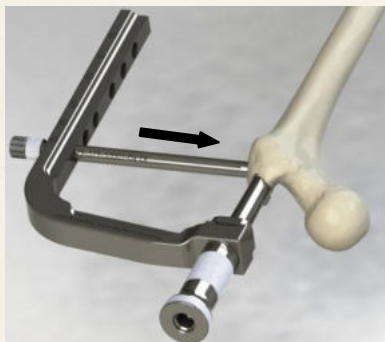
Insertion of the Intramedullary nail - The retrograd approach

- For a retrograd insertion, make a small incision starting at the lower tip of the patella in the distal direction.
- According to the surgeon's own assessment, either by splitting the patellar tendon ligaments apart or by keeping them to one side, the intramedullary canal can be opened at the fossa intercondyloidea area, either by a drill first and then a sharp awl, or directly using a sharp awl.
- It is advisable to check how the thickness of the selected nail compares to the size of the intramedullary canal, prior to its insertion.
- Based on that, it can be decided whether it is necessary to carry out the intramedullary reaming or not. (The details of indications for using reamed or unreamed techniques are beyond the scope of this surgical techniques description).
- After that carefully, while holding the nail near the targeting arm, introduce it into the canal by continuously rotating it few degrees to the right and left. If necessary, apply few mild strokes with the hammer to the driver handle. The proper positioning of the nail can be checked with the help of an X-ray monitor.

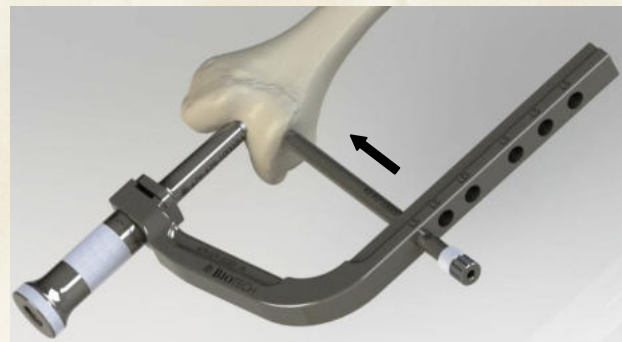


Insertion of the locking bone screws

- For the interlocking by anterograd approach, 1 dynamic hole (marked with D on the target arm), and (distally to it) 3 static holes are available for the 5mm dia. screws.
- For the interlocking by retrograd approach 1 dynamic and 5 static hole are available for locking; The two holes on the distal side are for the 6.5mm dia. screws, while the remaining holes are for the 5mm dia. screws.
- Slide the 4.5/135.5mm drill bushing into the 9.5/120mm guide tube, and then push it through the selected hole in the targeting arm, and all the way through a little skin incision till it reaches the femoral cortex.



11. Anterograd

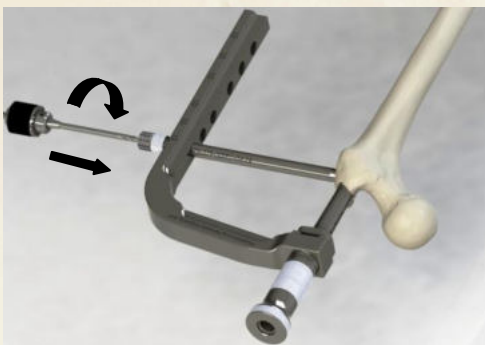


12. Retrograd

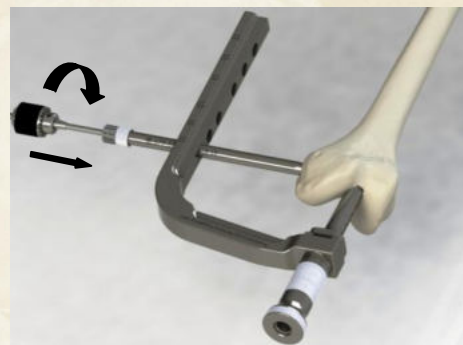


13. Short Femoral Retrograd

- Using a 4.2mm drill, prepare the insertion place for the 5 mm dia. locking bone

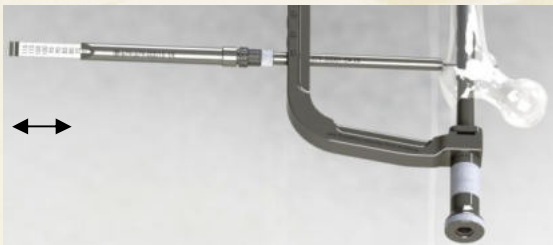


13. Anterograd



14 Retrograd

- With a screw depth gauge determine the length of the required screw.



15. Anterograd



16 Retrograd

- Then after removing the drill bushing, insert the locking bone screw throught the guide tube.



17. Anterograd



18 Retrograd

Distal locking

If distal locking is carried out first, there could be the advantage of creating some intra-fragmental compression - if necessary - by using the backstrike technique.

The nail must have been inserted to the sufficient depth beforehand. For distal locking, always use at least two locking screws to ensure adequate stability.

Check the reduction, correct alignment of the fragments and leg length and then align the image intensifier until the most distal nail hole appears completely round.

Carry out the incision with the scalpel.

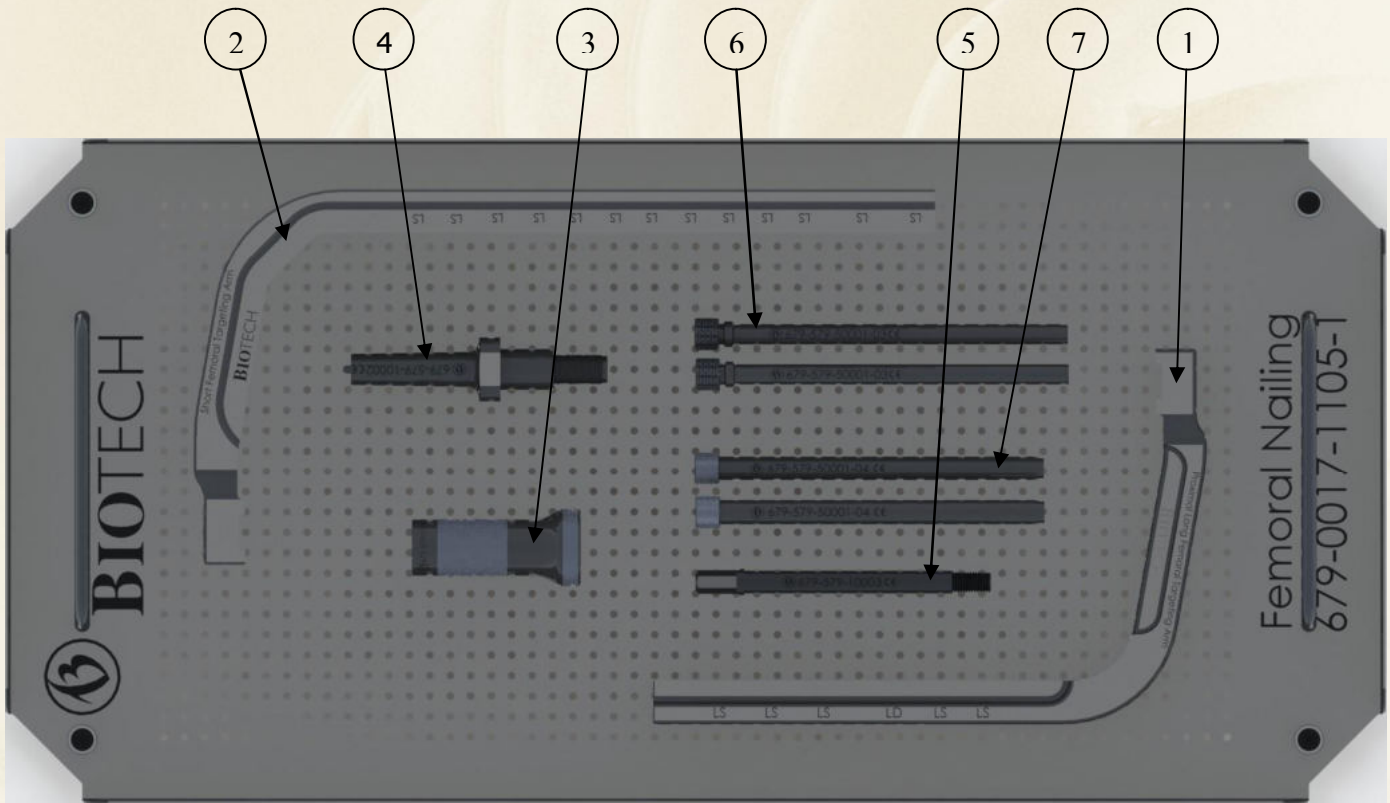
Choose the appropriate size of drill bit and push it through the incision down to the bone. Drill through both cortices until the tip of the drill bit just breaks through the lateral cortex.

Measure locking screw length using the depth gauge and insert the locking screws using the hexagonal screwdriver.

Techniques for the removal of the intramedullary nails

- For the removal of previously inserted intramedullary nail, open up the head of the nail first, and then remove the nail closing end-cap and all of the locking bone screws.
- Place the driver bushing in position, fix it with the driver bolt, and then fit the driver handle to it.
- Connect the extractor adapter to the driver handle.
- The hammer extractor -with help of its threads - can be screwed into the extractor adapter. To prevent damaging of the threads, the connection should be tightly secured between the adapter and the hammer extractor's rod.
- Finally, by moving the hammer extractor the nail can be pulled out

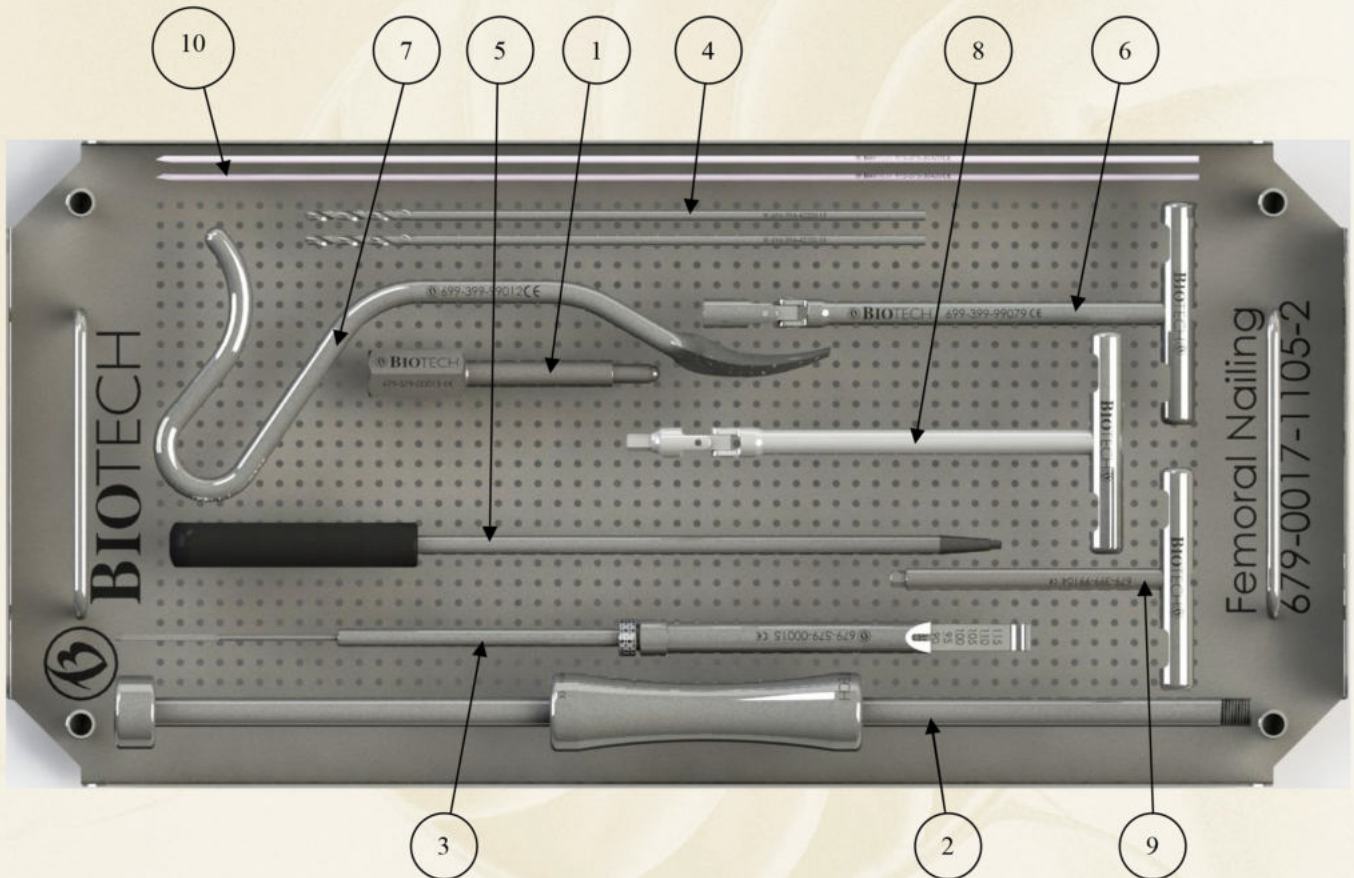
BLF-Biotech Long Femoral Nailing Instrument Set 679-0017-1105-1



Biotech Code	Description	Pcs./set
1. 679-579-22201	Proximal Long Femoral Target Arm	1
2. 679-579-44401	Short Femoral Target Arm	1
3. 679-579-11055	Nail Impactor	1
4. 679-579-10002	Driver Bushing	1
5. 679-579-10003	Driver Bolt	1
6. 679-579-50001-3	Drill Bushing	2
7. 679-579-50001-4	Guide Tube	2

BLF-Biotech Long Femoral Nailing Instrument Set

679-0017-1105-2



Biotech Code	Description	Pcs./set
1. 679-579-00013	Extractor Adapter	1
2. 679-579-00014	Hammer Extractor	1
3. 679-579-00015	Screw Depth Gauge	1
4. 694-394-42250	Drill Ø4,2-250 mm	2
5. 699-399-04535	Screwdriver 3,5mm	1
6. 699-399-99079	T wrench In Hexa 6mm With Cardan	1
7. 699-399-99012	Awl	1
8. 679-399-99103	T wrench Out Hexa 6mm With Cardan	1
9. 679-399-99104	T wrench Out Hexa 6mm	1
10. 975-375-30420	Kirschner Wire	2



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