

# Biotech Tibial Nail

## Surgical Technique



**BIOTECH**

Biotech GmbH  
Hauptstraße 113.  
56598 Rheinbrohl Germany  
Tel : +49 2635 92221-0  
Email : office-de@biotech-medical.net  
www.biotech-medical.com

REF:  
VB-006-PROSP-ST

Revision  
2

Publication date :  
01.04.2022.

CE1011

**“Movement is Life”**

## Assembling of the nail and the targeting device

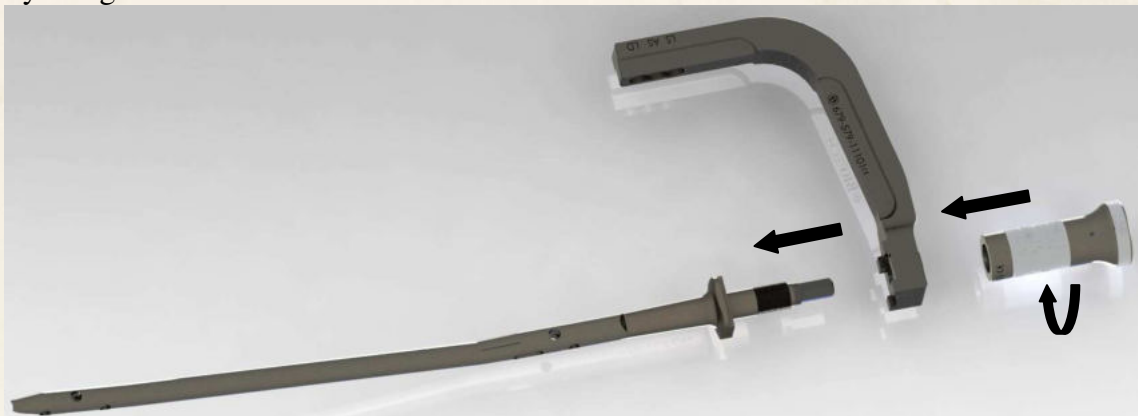
- On the basis of the pre-operative measurements, the tibial nail of the right length and thickness is chosen.

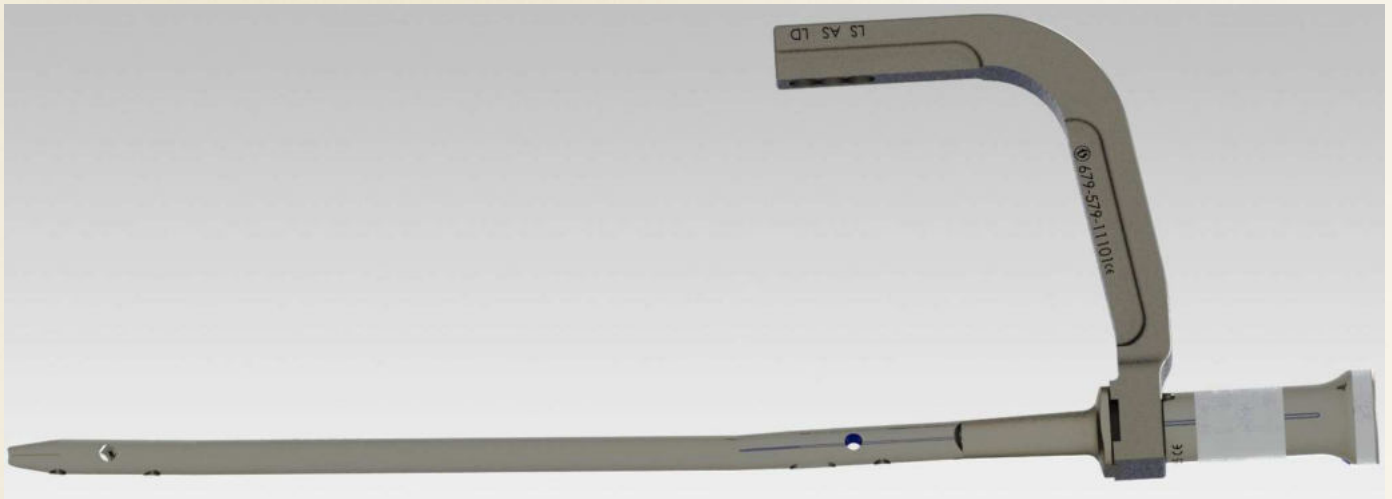


- In the first step, fit the driver bushing onto the nail, and then fix them together with the help of the driver bolt and tighten it well with wrench on.8 (with cardan joint)



- After that, take the Tibial Target Arm on the Bushing and turn on the Nail Impactor. Tighten this assembly using T Wrench.

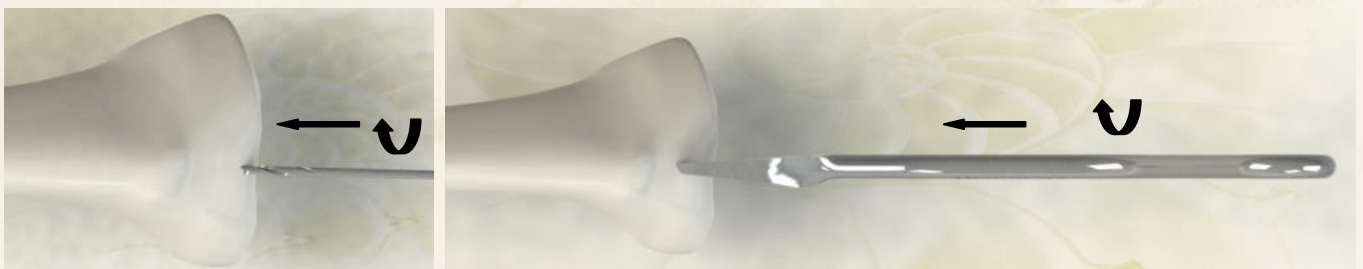




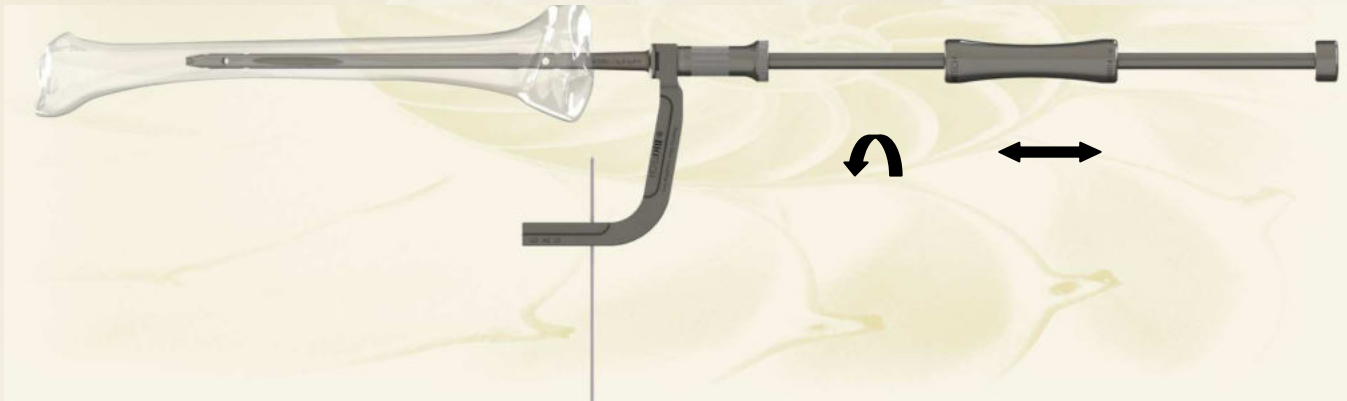
- The proximal targeting arm can be rotated together with the base arm by 90 degrees. For this, the nut has to be loosened a little bit. This rotation can prove useful for targeting the locking hole present on the sagittal plane.

### Insertion of the intramedullary nail

- Make a little skin incision above the patella, and then by splitting the patellar tendon ligaments apart the frontal side of the tibia can be reached.
- Directly in front of the joint surface, and a little bit medially from the central line, open the intramedullary canal. 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.



- Prior to the insertion, it is advisable to check how the thickness of the selected nail compares to the size of the intramedullary canal. Based on that it can be decided whether to carry out the intramedullary reaming or not.
- After that carefully, while holding the nail near the base targeting arm, introduce it into the canal by continuously rotating it few degrees around its long axis. If necessary, apply mild strokes with the hammer on the driver handle. On the target arm through a hole in Kirschner wire introduced, which shows the X-ray monitor, through the end of the nail. (pic)



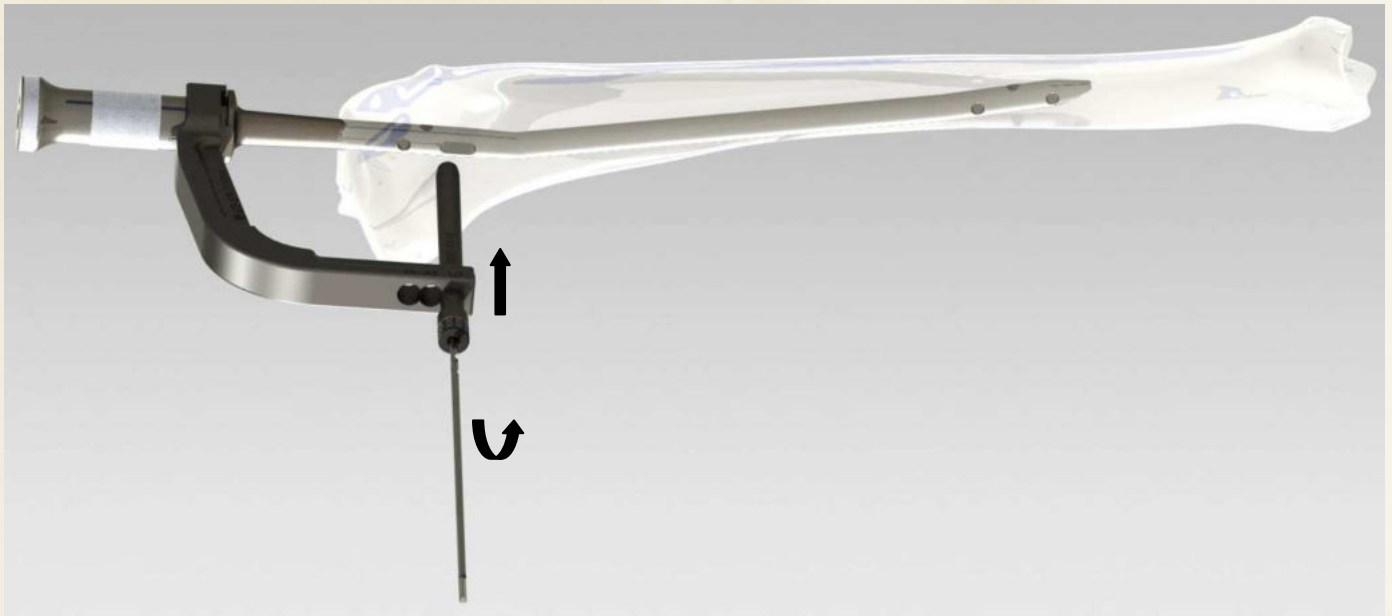
## PROXIMAL TARGETING

### Insertion of the locking bone screws

- In the case of tibia, the frontal plane locking is done from the medial direction. (The two holes on the sides of the targeting arm serve this purpose either dynamic LD or static way LS). For the sagittal plane locking, rotate the proximal targeting arm 90 degrees in the ventral direction, and use the central hole on the targeting arm (the hole marked with letter AS on the proximal targeting arm).
- Into the 9.5/120mm guide tube slide the 3.5/135.5mm drill bushing (in case our nail is 8 or 9 mm in diameter), or the 4.5/135.5mm drill bushing (for 10 mm or a thicker nail), and push it through the selected hole in the targeting arm (LD,LS or AS), and all the way through a little skin incision until it reaches the tibial cortex.



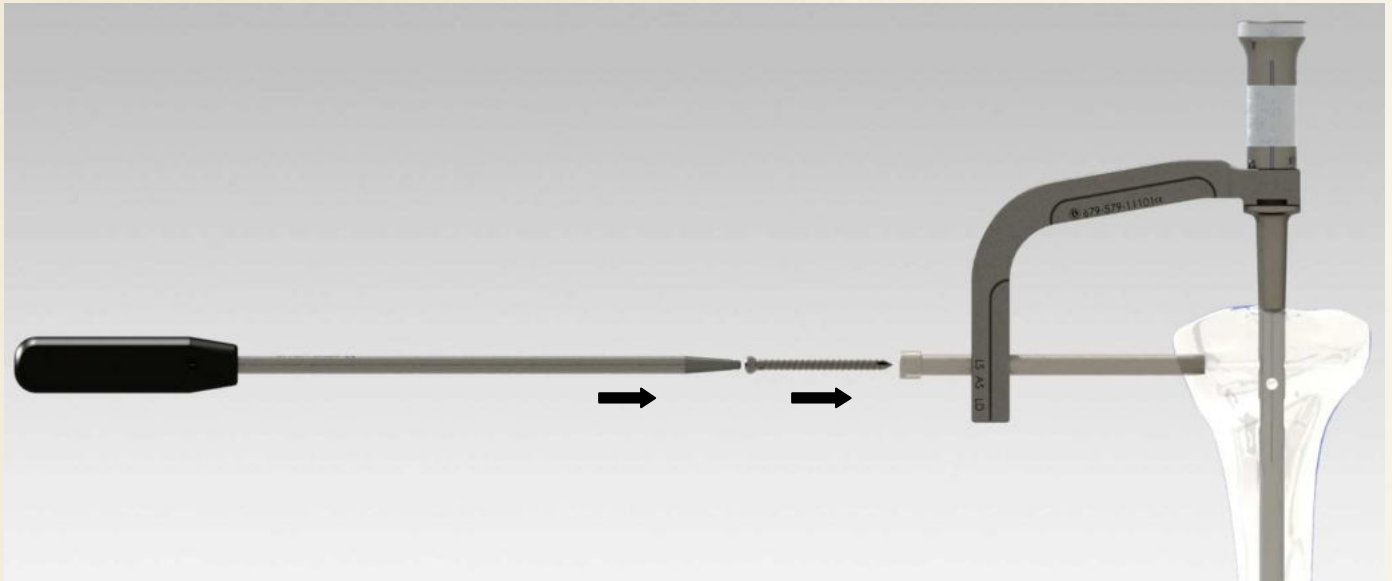
- The places for locking bone screws are prepared by using a **3.2mm drill** for thinner nails (8mm and 9mm), and **4.2mm drill** in case of the thicker nails (10mm - 14mm).



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



- Then after removing the drill bushing, insert the locking bone screw into the guide tube. For nails of 8 or 9mm diameter use a 4mm locking screws. For thicker nails 5mm locking screws are used. For this purpose 2.5mm and 3.5 mm screwdrivers are available



## 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 before hand. 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.

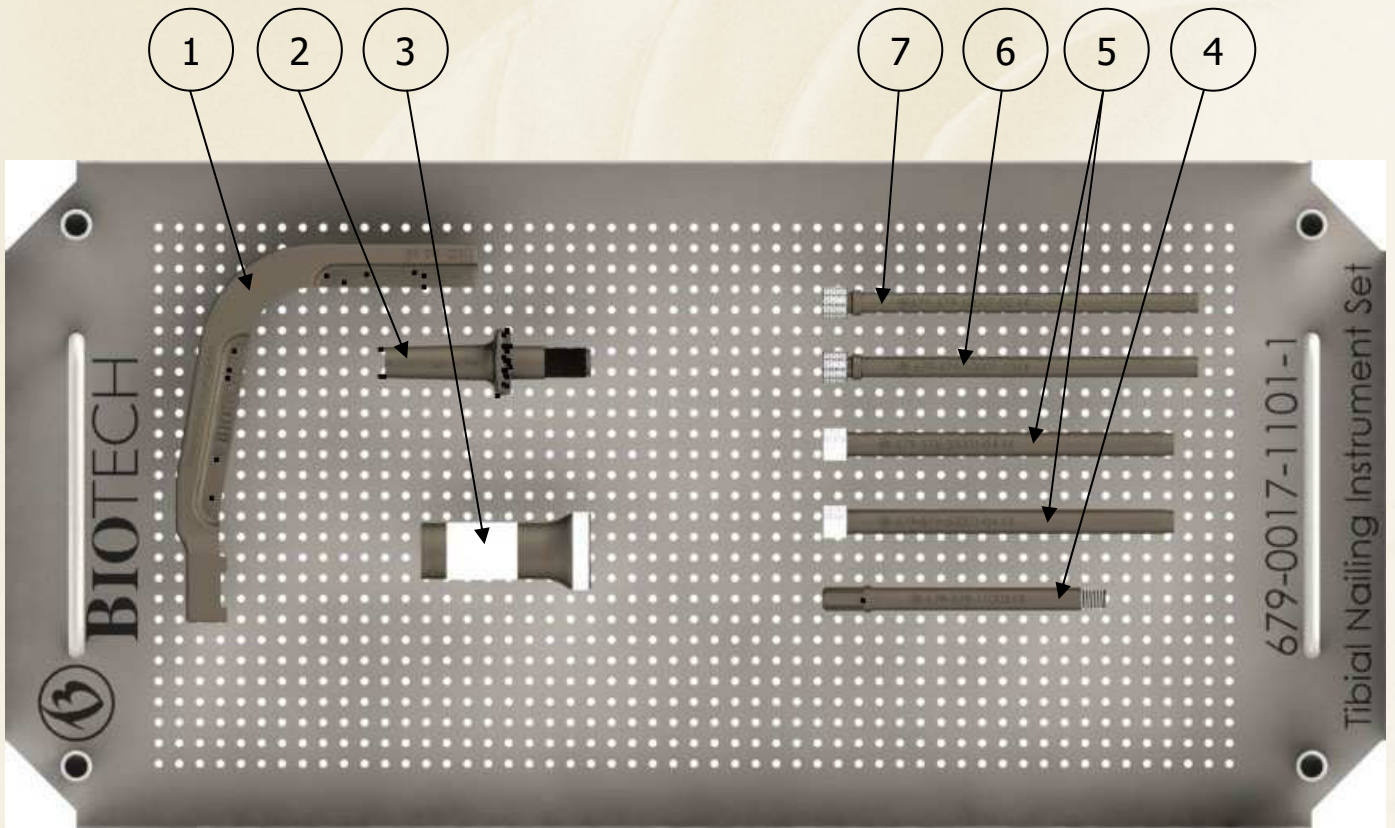
Choose the appropriate size of drill bit and push it through the incision down to the bone. Drill through both cortices until the tip of the drill bit just breaks through the lateral cortex.

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

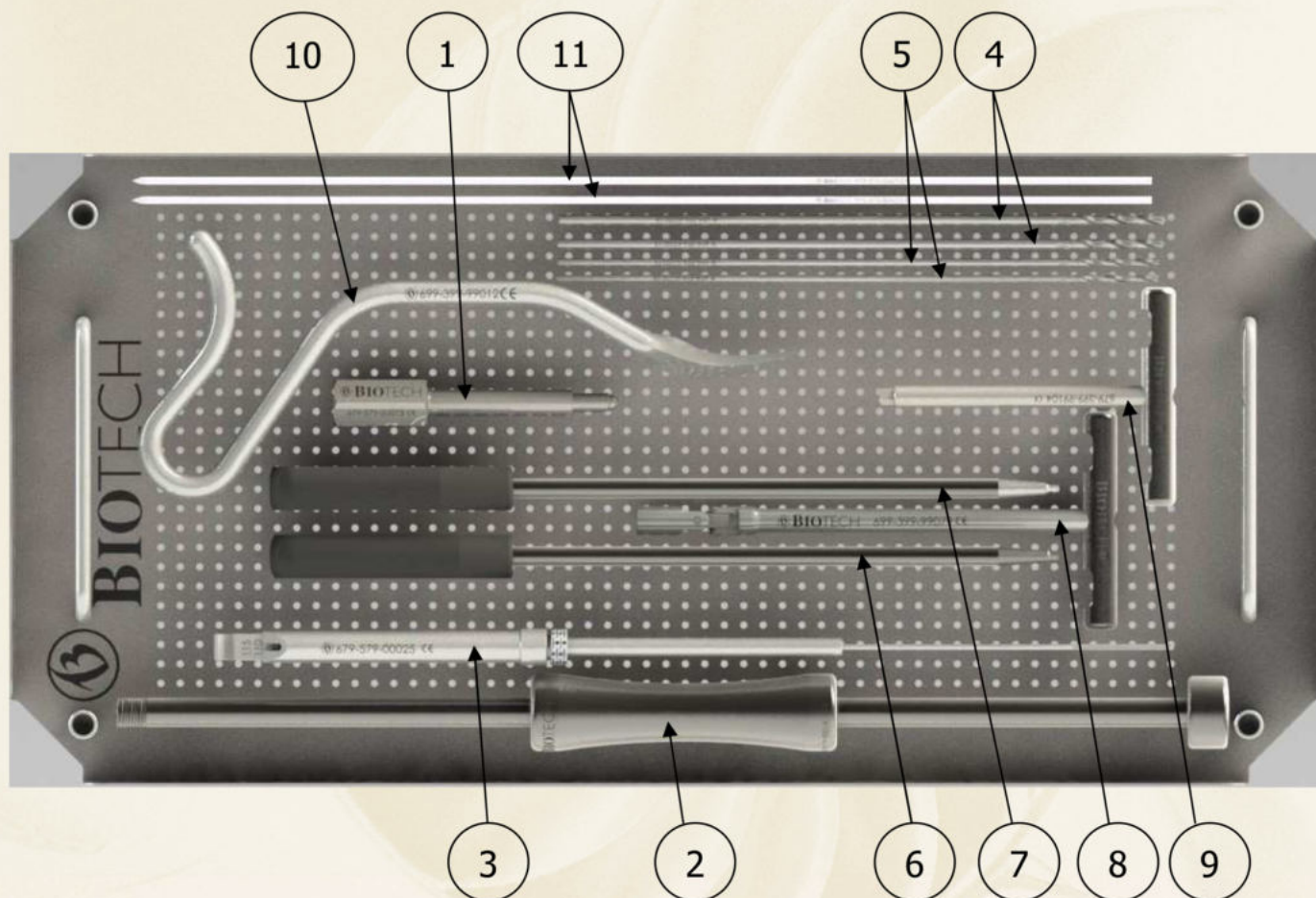
- For the removal of a previously inserted intramedullary nail, first open up the head of the nail, and then remove the nail closing end cap and all of the locking bone screws.
- Place the driver bushing in position, fix it with the driver bolt, and then fit the driver handle to it.
- Then connect the extractor adapter to the driver handle. The hammer extractor -with the 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.

**Biotech Tibia Nailing Instrument Set  
679-0017-1101-1**



Biotech Code	Description	Pcs/Set
1. 679-579-11101	Proximal Tibial Target Arm .....	1
2. 679-579-11002	Tibia Driver Bushing .....	1
3. 679-579-11055	Nail Impactor .....	1
4. 679-579-11003	Driver Bolt .....	1
5. 679-579-50001-04	Guide Tube 9,5mm .....	2
6. 679-579-10001-03	Drill Bushing 4,5.....	1
7. 679-579-10001-05	Drill Bushing 3,5.....	1

## Biotech Tibia Nailing Instrument Set 679-0017-1101-02



	Biotech Code	Description	Pcs/Set
1.	679-579-00013	Extractor Adapter .....	1
2.	679-579-00014	Hammer Extractor .....	1
3.	679-579-00025	Screw Depth Gauge .....	1
4.	694-394-45250	Drill Ø 4,2x250 mm .....	2
5.	694-394-32250	Drill Ø 3,2x250 mm .....	2
6.	699-399-04525	Screwdriver 2,5 mm.....	1
7.	699-399-04535	Screwdriver 3,5 mm.....	1
8.	699-399-99079	T Wrench In Hexa 8mm With Cardan .....	1
9.	679-399-99104	T Wrench Out Hexa 6 mm .....	1
10.	699-399-99012	Awl.....	1
11.	975-375-30420	Kirschner Wire Ø 3x420mm .....	1



# "Movement is Life"

REF:  
VB-006-PROSP-ST

Revision  
2

Publication date :  
01.04.2022.

CE 1011

Biotech GmbH  
Hauptstraße 113.  
56598 Rheinbrohl Germany  
Tel : +49 2635 92221-0  
Email : office-de@biotech-medical.net  
www.biotech-medical.com

