ChM®

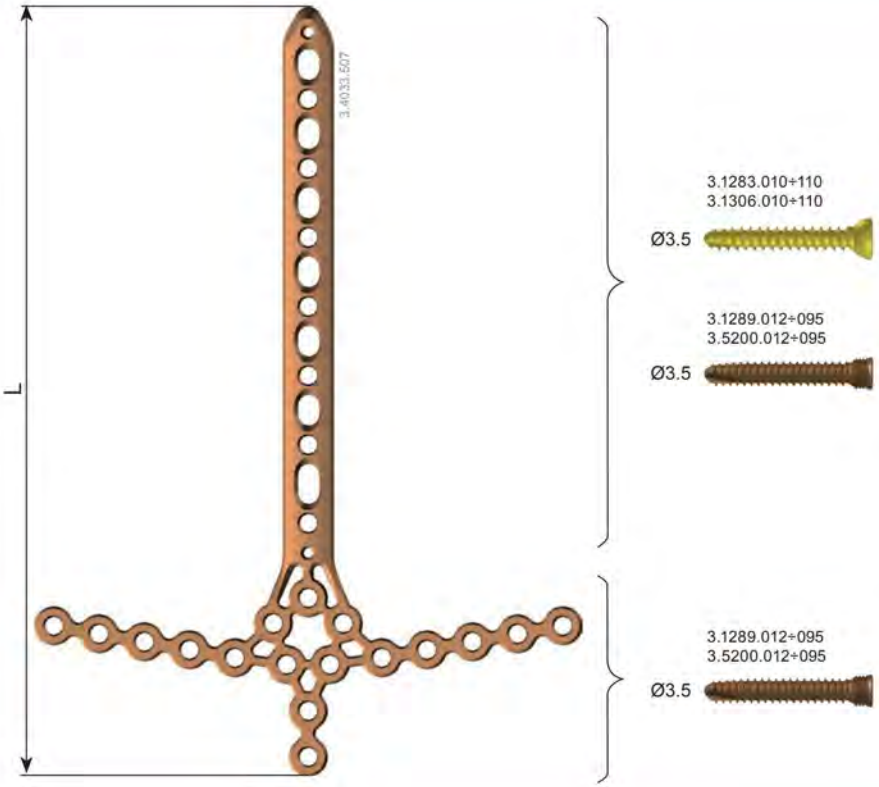
Surgical technique

5,0 ChM Locked Plating ChLP system

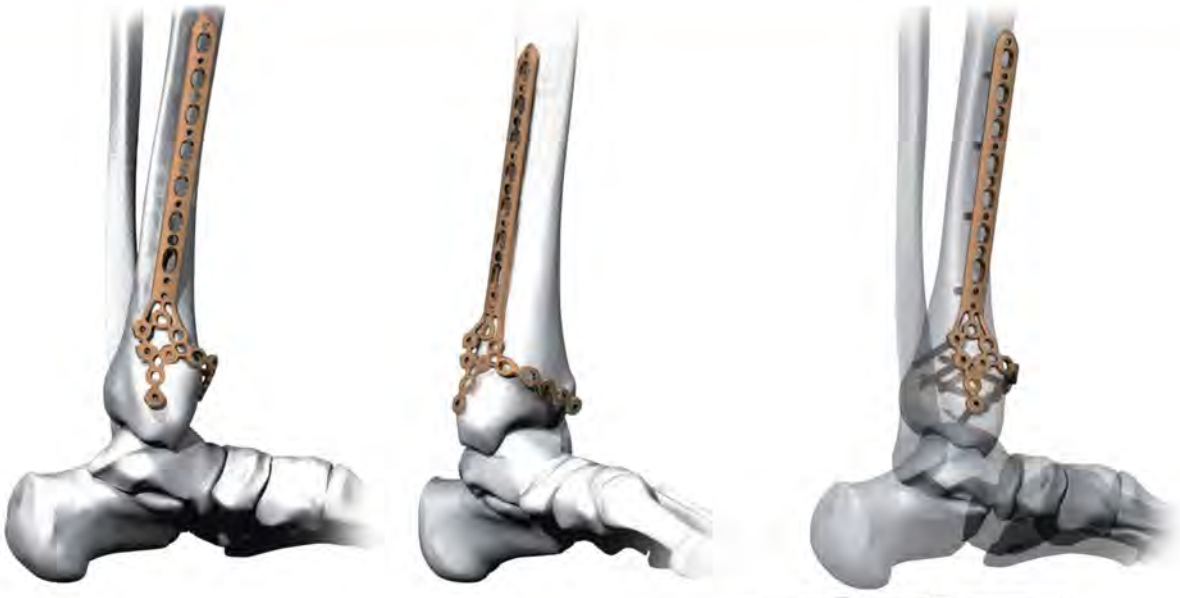
5.0ChLP distal medial tibial plate

O	L [mm]	Catalogue no.
7	167	3.4033.507
9	197	3.4033.509

O – threaded holes number in shaft part of the plate



Additional equipment :
40.5394.501
5.0ChLP - 3.4033.5xx plate trial



Palette for 5.0ChLP plates -3.4033

No.	Catalogue no.	Name	Pcs	
1	40.5758.060	Palette	1	40.5758.560
2	12.0751.100	Container solid bottom 1/2 306x272x85 mm	1	
3	12.0751.200	Perforated aluminum lid 1/2 306x272x15 mm Gray	1	

implants not included

ChM sp. z o.o., Lewickie 3b, 16-061 Juchnowiec Kościelny, POLAND, tel. + 48 85 713 13 20, fax + 48 85 713 13 19, chm@chm.eu, www.chm.eu

Indications

- Comminuted fractures of the distal part of the tibial bone.
- Non-union or malunions of fractured bone.

Contraindications

Absolute:
- Health condition precluding surgery.
- Allergic reactions to the metal from which the implant is made.
- Active infection.

Relative:
- Weakened bone *(by disease, infection or prior implantation)* making it impossible to install/stabilize the implant properly.
- Abnormal perfusion of fracture area.
- Excessive obesity.
- Lack of adequate tissue coverage.
- Psychiatric disorders or the disorders of the musculoskeletal system which may create a risk of fusion failure or complications in the postoperative period.
- Other medical conditions that exclude the potential benefits of the treatment.

The patient's position

Lying on the back position

Surgical approach

Surgical approach depends on the positioning of the implant on the distal base of the tibia. Different surgical approaches may be applied: anterior, anterior-lateral or medial one.

Anterior approach.

Medial approach.

Anterio-lateral approach.

Procedure stages

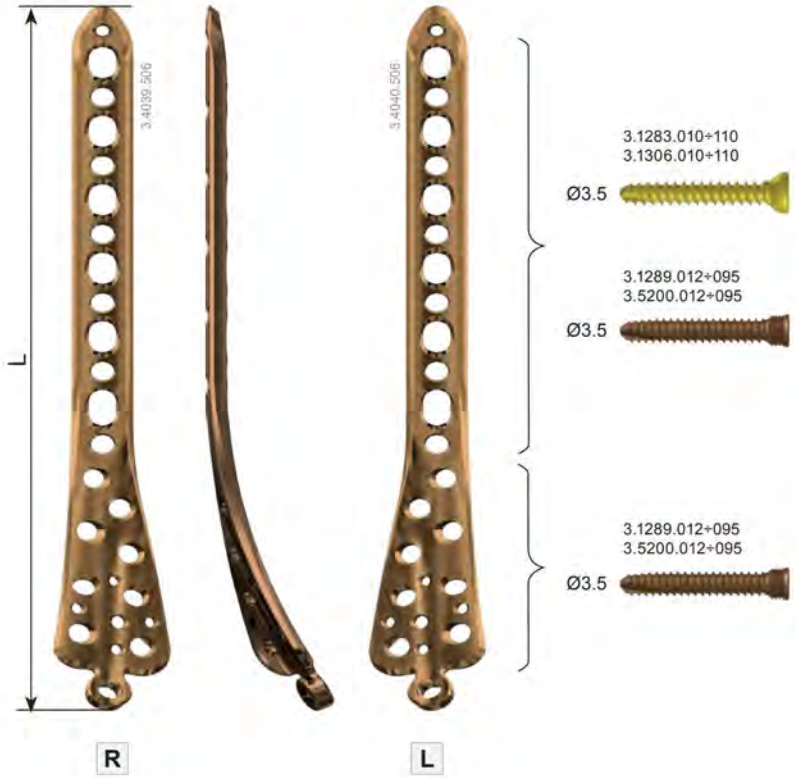
- Reduction of fracture and stabilization of the fracture fragments using Kirschner wires.
- The choice of implants - determining the length and position of the implant.
- Shaping the implant - bending arms of the plate, cutting away unnecessary holes.
- Insertion of the plate and its positioning.
- Temporary stabilization of the implant using Kirschner wires, setting-compressing screw or compression screw.
- Introduction of the screws in the distal parts of the plate *(Attention: Reduction of the bone fragments will not be possible after using locking screws. Avoid clashes of the screws!)*.
- Stabilization of the shaft using locking or compression screws.
- Making X-Ray film in both A-P and lateral position as to make sure the plate and screws are positioned properly.
- Closing the wound.

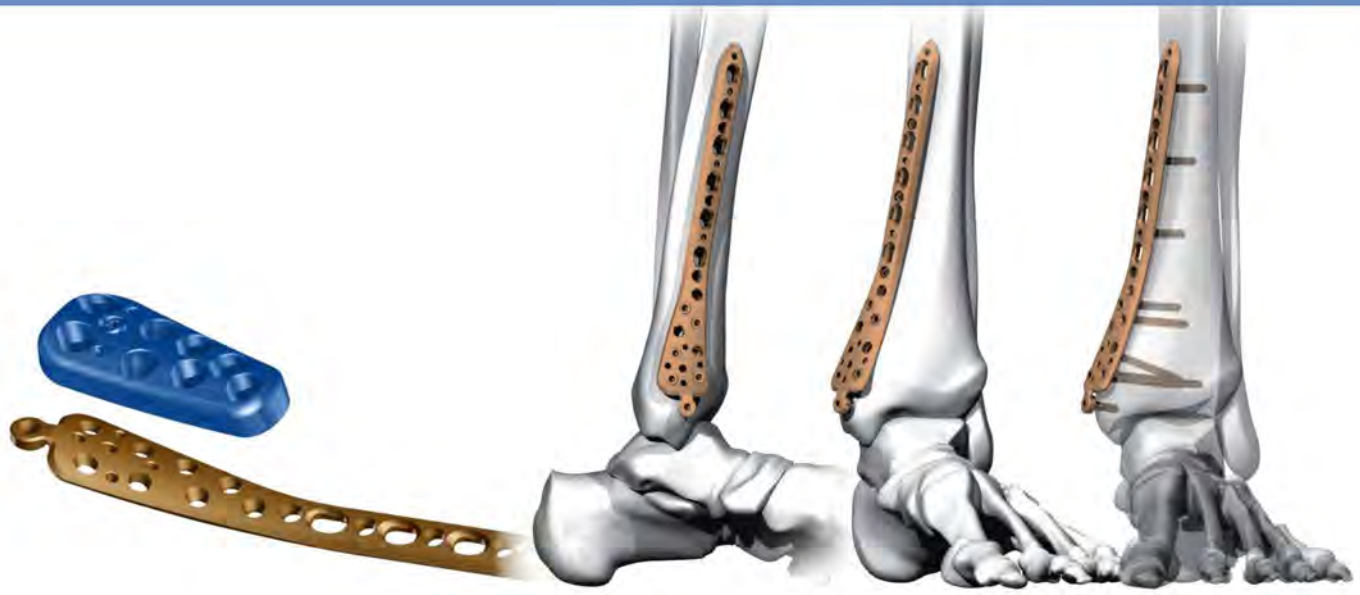
5.0ChLP tibial distal medial plate

O	L [mm]	Catalogue no. Left	Catalogue no. Right
4	123	3.4039.504	3.4040.504
6	153	3.4039.506	3.4040.506
8	183	3.4039.508	3.4040.508

O – threaded holes number in shaft part of the plate

available	**4 - 14 holes** *(123 mm - 273 mm)*





Palette for 5.0ChLP plates -3.4039/3.4040

No.	Catalogue no.	Name	Pcs		
1	40.5726.100	Aiming block L **[3.4039]**	1	40.5758.070	40.5758.570
2	40.5726.200	Aiming block R **[3.4040]**	1		
3	40.5672.000	Protective guide 7.0/5.0	2		
4	40.5758.270	Palette	1		
5	12.0751.100	Container solid bottom 1/2 306x272x85 mm	1		
6	12.0751.200	Perforated aluminum lid 1/2 306x272x15 mm Gray	1		

implants not included; with additional instruments

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Indications

- Comminuted fractures of the distal part of the tibial bone and the fractures extending to the shaft of the tibia.
- Non-union or malunions of fractured bone.

Contraindications

Absolute:

- Health condition precluding surgery.
- Allergic reactions to the metal from which the implant is made.
- Active infection.

Relative:

- Weakened bone *(by disease, infection or prior implantation)* making it impossible to install/stabilize the implant properly.
- Abnormal perfusion of fracture area.
- Excessive obesity.
- Lack of adequate tissue coverage.
- Psychiatric disorders or the disorders of the musculoskeletal system which may create a risk of fusion failure or complications in the postoperative period.
- Other medical conditions that exclude the potential benefits of the treatment.

The patient's position

Lying on the back position

Surgical approach

Medial approach. The cut begins approximately 1 cm proximally from the medial ankle to the desired length of the plate. In the minimally invasive technique, a cut above the medial ankle and short cuts for the access to the holes of the shaft of the plate should be performed.

Procedure stages

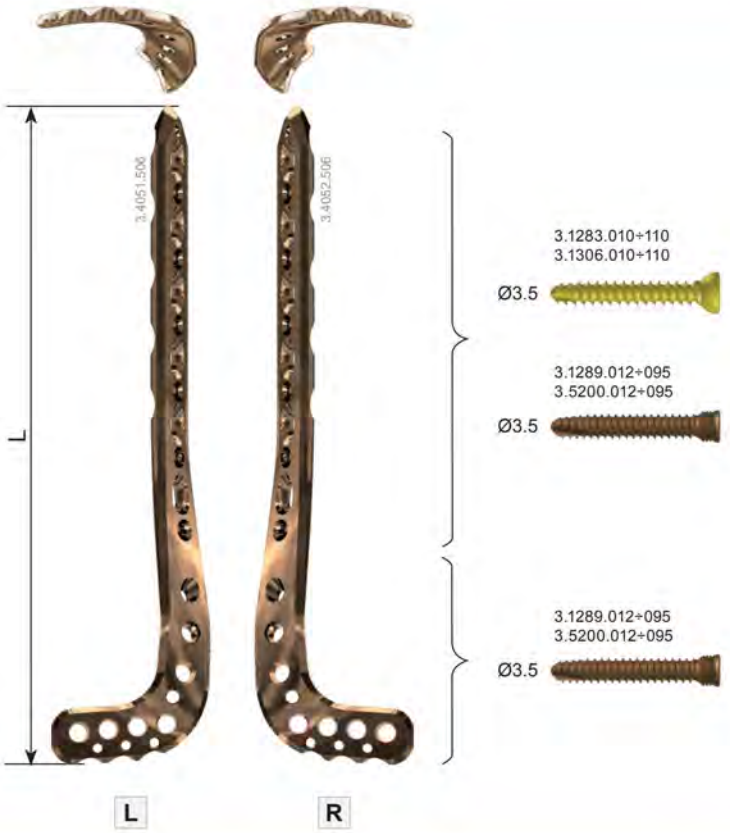
- Reduction of fracture and stabilization of the fracture fragments using Kirschner wires.
- The choice of implants - determining the length and position of the implant.
- Insertion of the plate and its positioning.
- Temporary stabilization of the implant using Kirschner wires.
- Introduction of the screws in the distal parts of the plate.
- Stabilization of the shaft using locking or compression screws.
- Making X-Ray film in both A-P and lateral position as to make sure the plate and screws are positioned properly.
- Closing the wound.

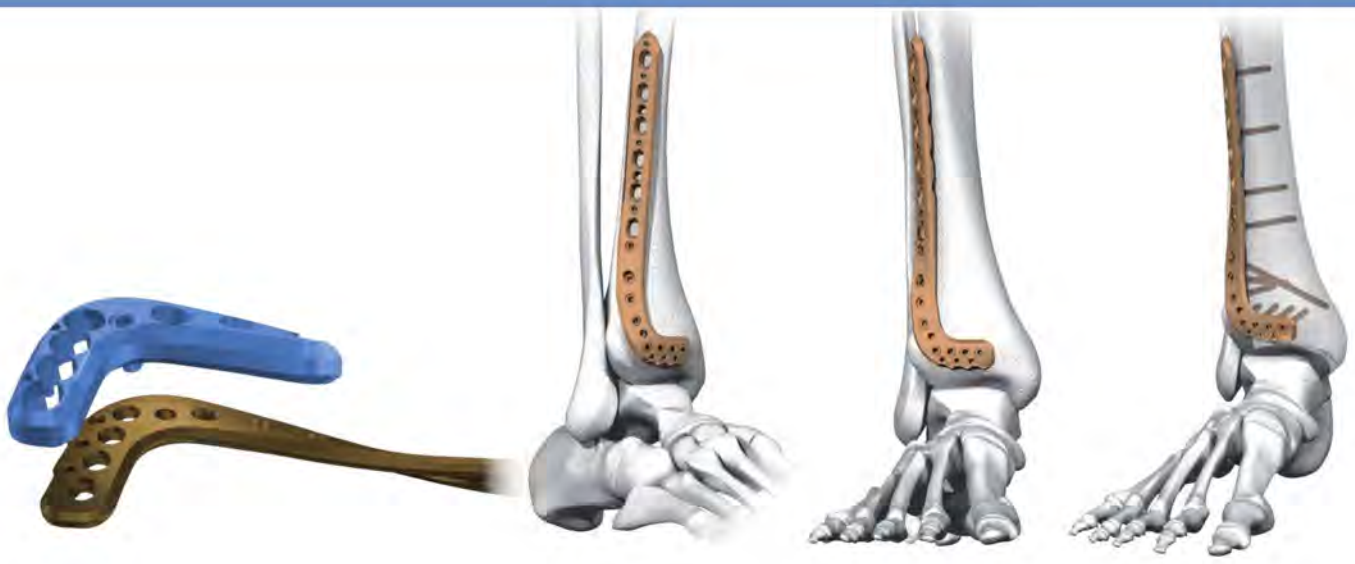
5.0ChLP distal tibial L plate

O	L [mm]	Catalogue no. Left	Catalogue no. Right
4	120	3.4051.504	3.4052.504
6	150	3.4051.506	3.4052.506
8	180	3.4051.508	3.4052.508

O – threaded holes number in shaft part of the plate

available	**3 - 16 holes** *(105 mm - 300 mm)*





Palette for 5.0ChLP plates - 3.4051/3.4052

No.	Catalogue no.	Name	Pcs		
1	40.5723.100	Aiming block L **[3.4051]**	1	40.5758.080	40.5758.580
2	40.5723.200	Aiming block R **[3.4052]**	1		
3	40.5672.000	Protective guide 7.0/5.0	2		
4	40.5758.280	Palette	1		
5	12.0751.100	Container solid bottom 1/2 306x272x85 mm	1		
6	12.0751.200	Perforated aluminum lid 1/2 306x272x15 mm Gray	1		

implants not included; with additional instruments

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Indications

- Comminuted fractures of the distal part of the tibial bone and the fractures extending to the shaft of the tibia.
- Non-union or malunions of fractured bone.

Contraindications

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- Active infection.

Relative:

- Weakened bone *(by disease, infection or prior implantation)* making it impossible to install/stabilize the implant properly.
- Abnormal perfusion of fracture area.
- Excessive obesity.
- Lack of adequate tissue coverage.
- Psychiatric disorders or the disorders of the musculoskeletal system which may create a risk of fusion failure or complications in the postoperative period.
- Other medical conditions that exclude the potential benefits of the treatment.

The patient's position

Lying on the back position

Surgical approach

Anterior-lateral approach. The cut performed between the tibia and fibula bone and should begin approximately 1 cm proximally from the medial ankle to the desired length of the plate. In the minimally invasive technique, a short cut and additional cuts for the access to the holes of the shaft of the plate should be performed.

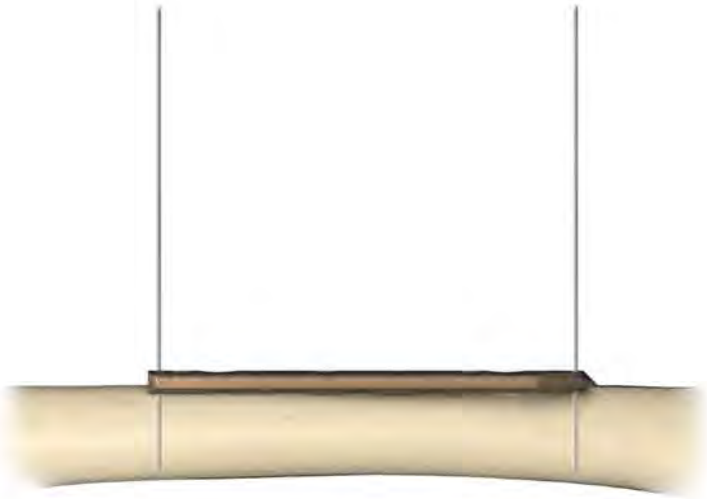
Procedure stages

- Reduction of fracture and stabilization of the fracture fragments using Kirschner wires.
- The choice of implants - determining the length and position of the implant.
- Insertion of the plate and its positioning.
- Temporary stabilization of the implant using Kirschner wires.
- Introduction of the screws in the distal parts of the plate.
- Stabilization of the shaft using locking or compression screws.
- Making X-Ray film in both A-P and lateral position as to make sure the plate and screws are positioned properly.
- Closing the wound.

IV. SURGICAL TECHNIQUE

IV.1. TEMPORARY PLATE ATTACHMENT

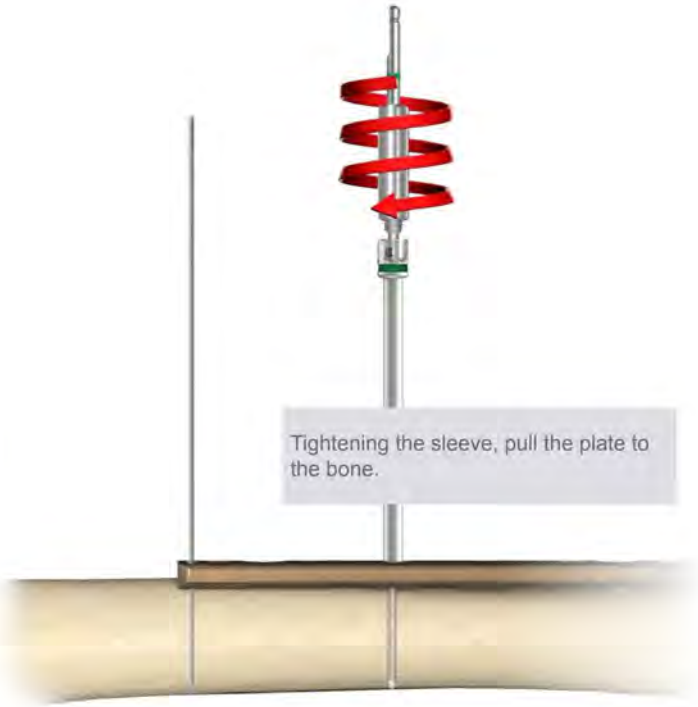
When fracture is reduced and the plate position is confirmed, determine its temporary location using Kirschner wires 2.0 **[40.4815.220]**.
Wires can be inserted in proximal holes of the plate and the most distal ones.



Confirm the plate position is correct taking X-ray image.

NOTE: The Setting-compressing screw 2.8/180 [40.5674.728] can be used to stabilize and tighten the plate up to the bone for temporary purposes. The screw is to be inserted via the Guide sleeve 5.0/2.8 [40.5673.728].

Locking screw Ø3.5 can be inserted in the hole after removal of the Setting-compressing screw 2.8/180.

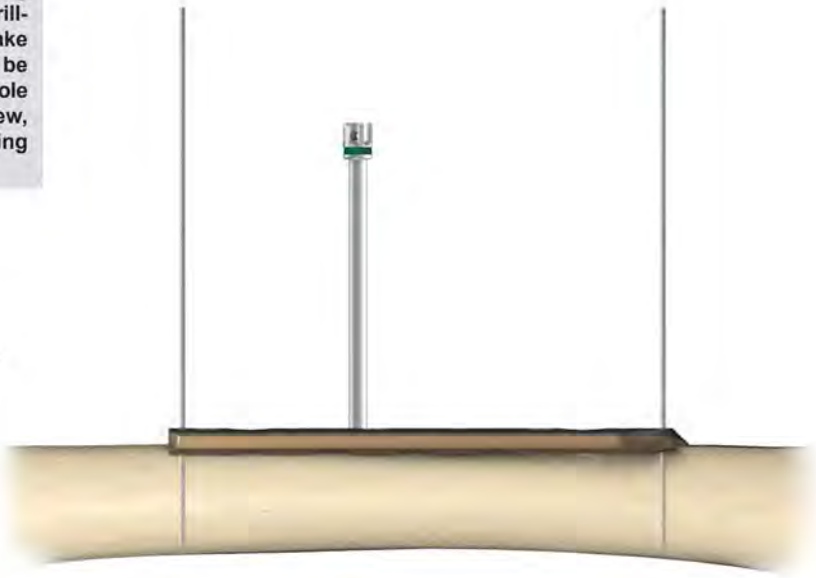


IV.2. LOCKING SCREW Ø3.5 INSERTION

It is important to drill exactly in the axis of a locking hole. Use always the appropriate guide sleeve when drilling. The guide sleeve will ensure the locking screw take an axial position towards the hole of the plate and be correctly locked in the plate. Unprepared drilling of a hole can lead to: thread skewing and jamming the screw, incorrect screw locking and problems when removing the screws *(thread seizure)*.

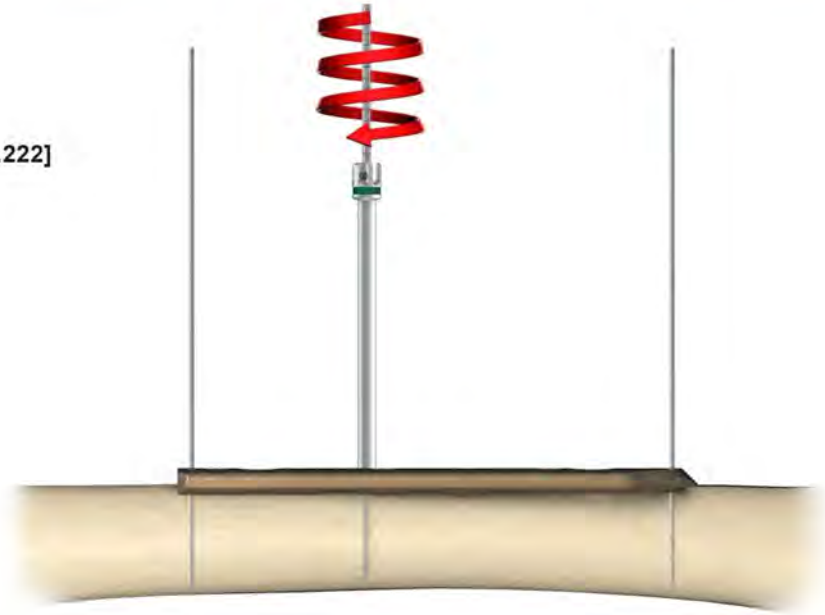
Guide sleeve screwing.

Insert the Guide sleeve 5.0/2.8 **[40.5673.728]** into the plate.



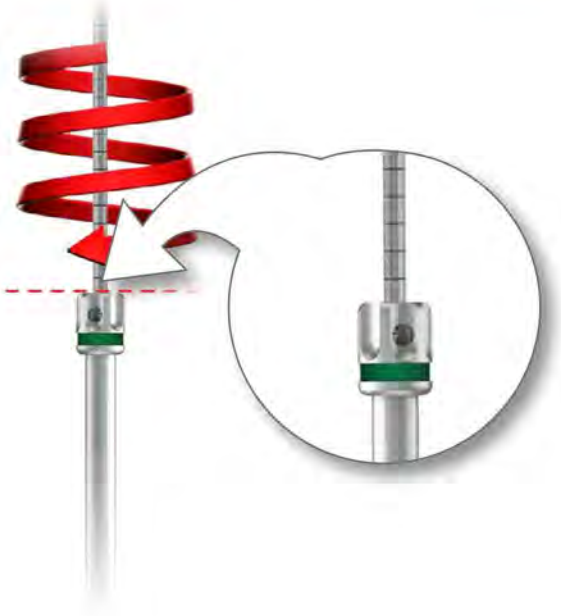
Drilling the hole

Ream the hole using the Drill with scale 2.8/220 **[40.5653.222]** until the desire depth is reached.

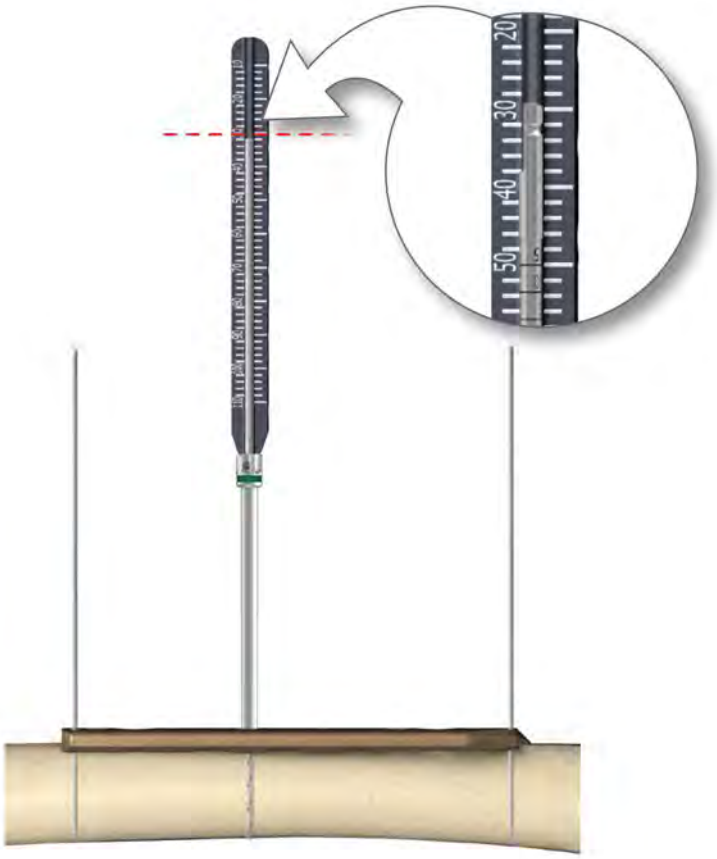


Hole depth measurement

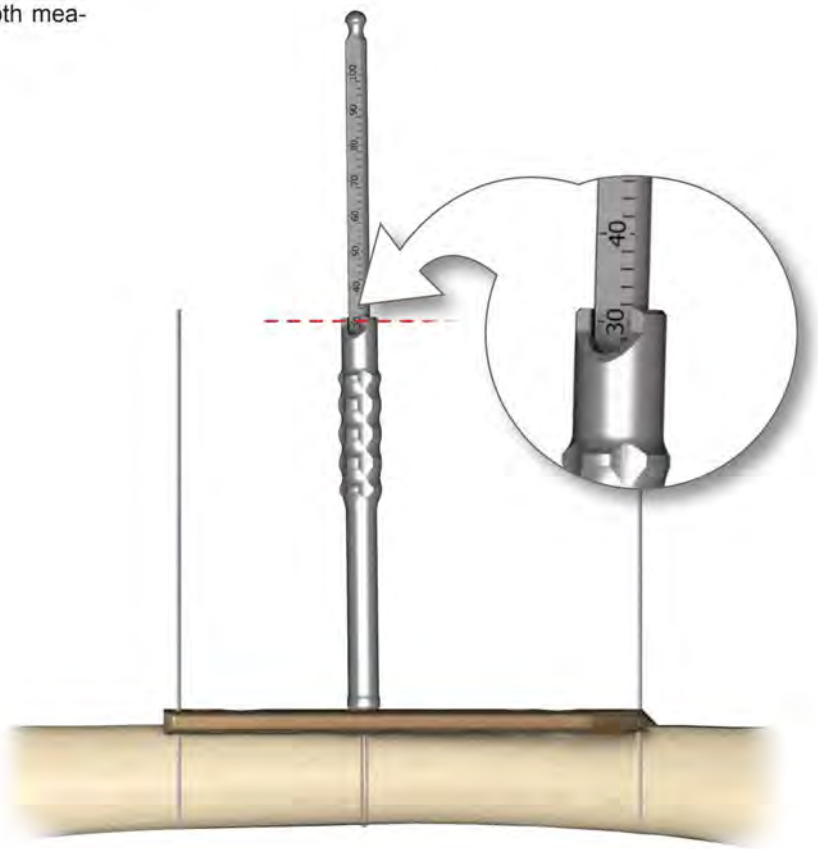
OPTION I: Read the value on the Drill with scale **[40.5653.222]** or



OPTION II: use the Screw length measure **[40.5675.100]**.

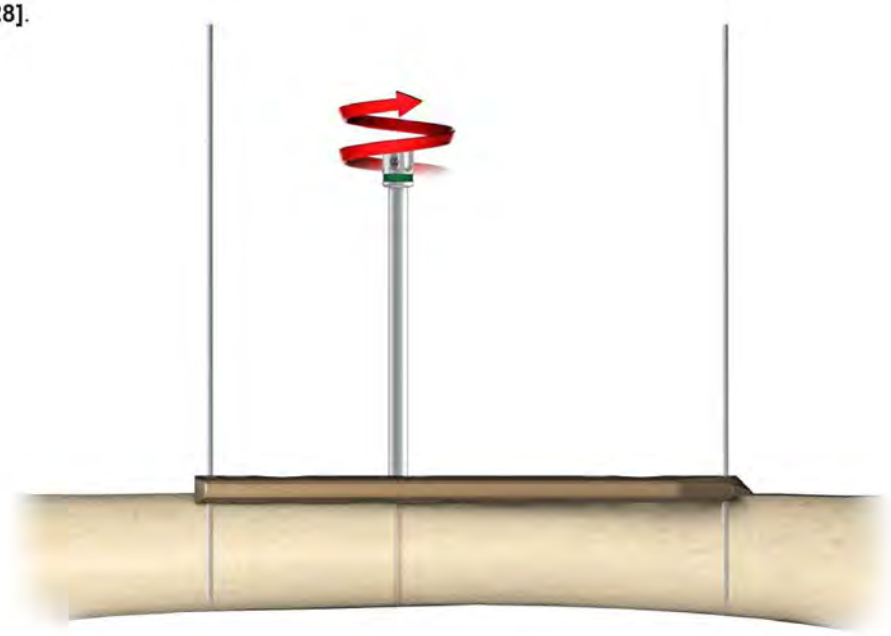


OPTION III: Unscrew the Guide sleeve 5.0/2.8 **[40.5673.728]** and define the screw length using the Depth measure **[40.4639.500]**.

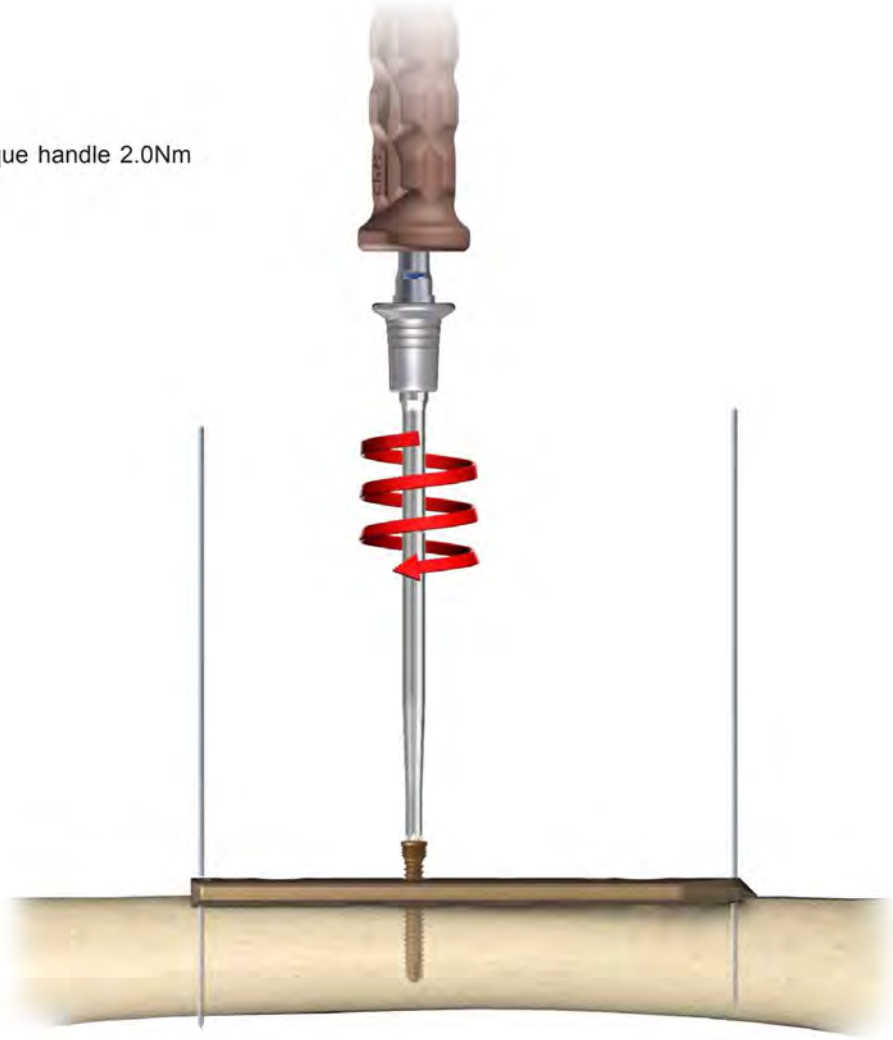


Screw insertion

Remove the Guide sleeve 5.0/2.8 **[40.5673.728]**.



Insert the locking screw Ø3.5 using the Torque handle 2.0Nm **[40.5635]** and proper screwdriver tip.

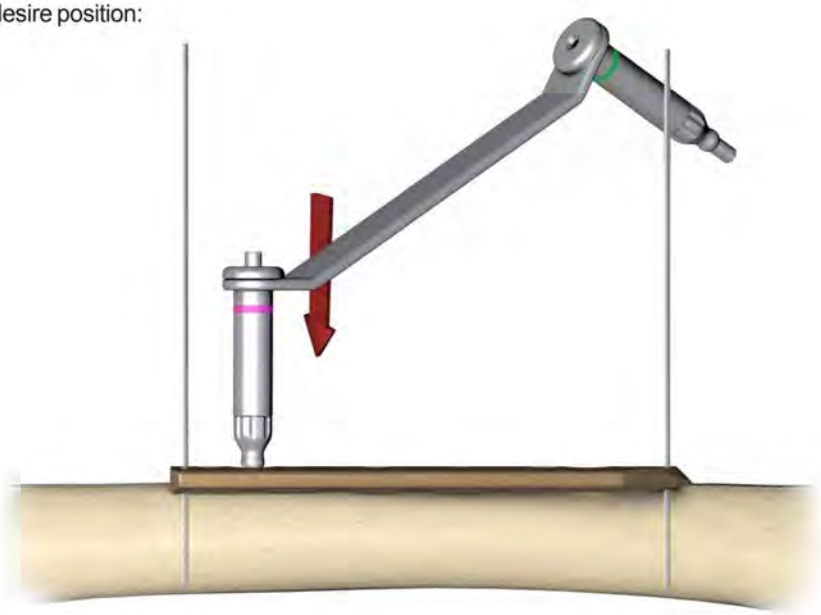


IV.4. CORTICAL SCREW Ø3.5 INSERTION

Compression guide setting
Set the Compression guide 2.5/2.8 **[40.4804.700]** in desire position:

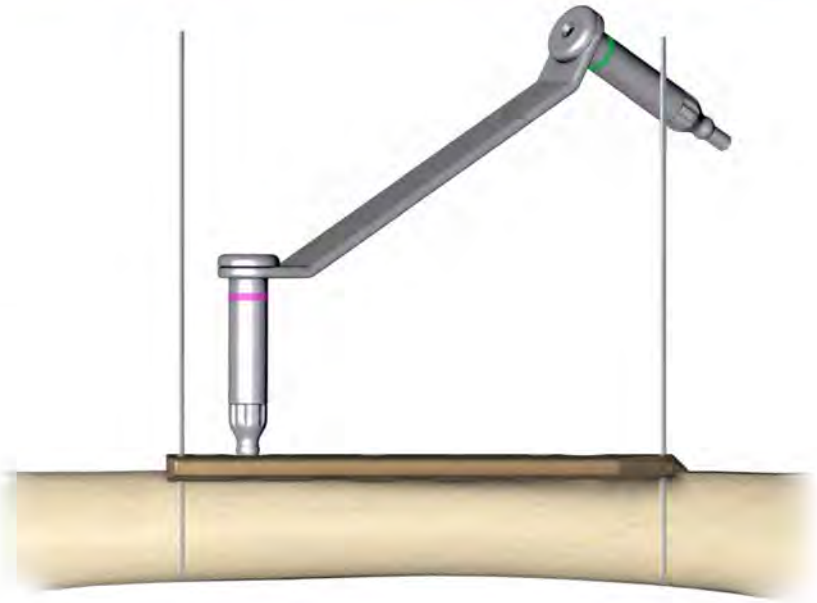
a. Neutral position

Press the guide to the plate to achieve the neutral position for screw insertion.



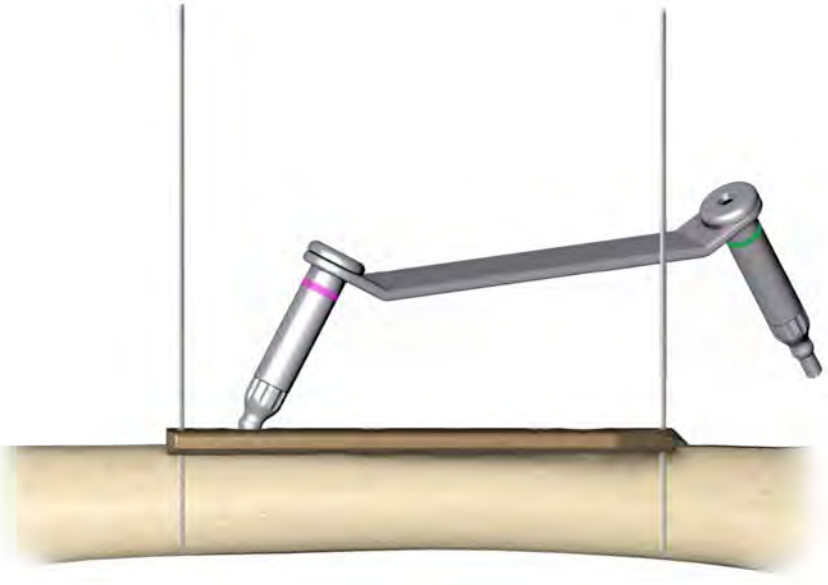
b. Compressive position

Move the guide without pressure to the edge of compression hole to achieve the compression position for screw insertion.



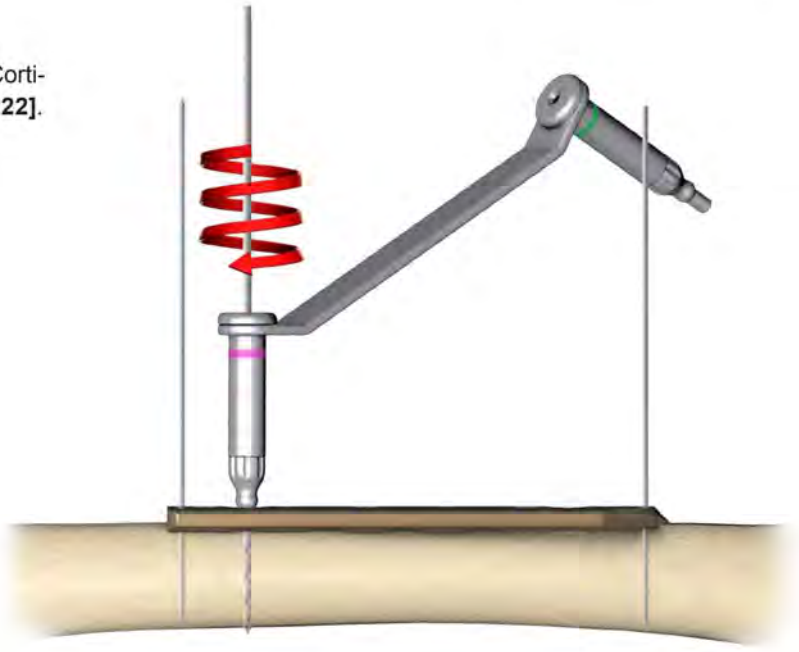
c. Angular position

Angular positioning of the guide is also available.



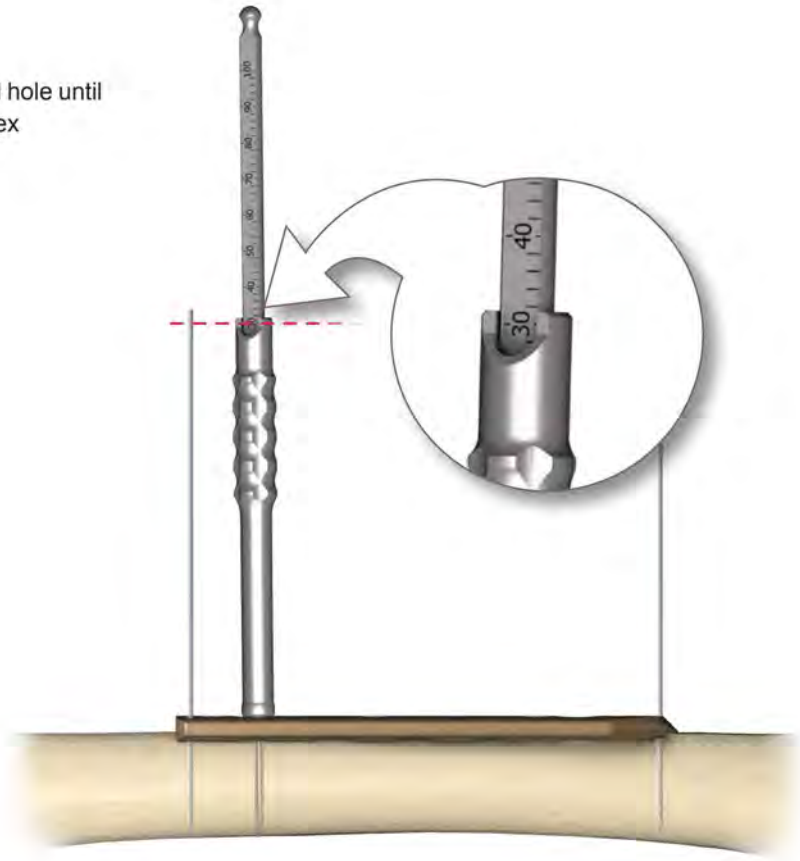
Drilling

Drill the hole through both cortices in desire position for the Cortical screw Ø3.5 insertion using the Drill Ø2.5/220 **[40.5912.222]**.



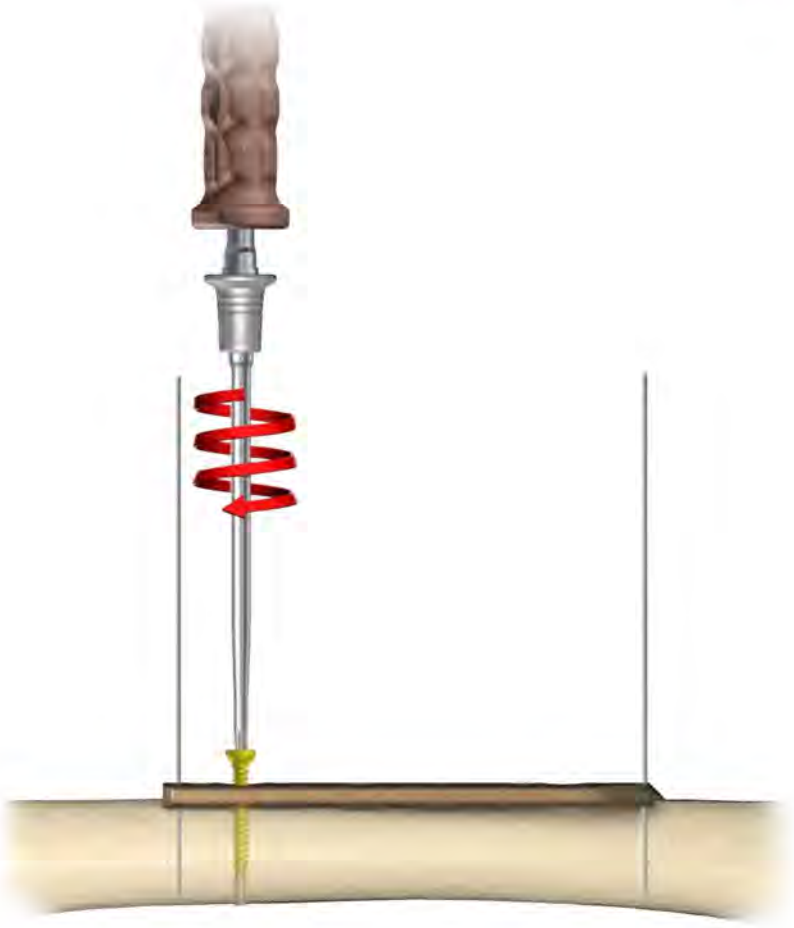
Hole depth measurement

Insert the Depth measure **[40.4639.500]** into the drilled hole until its hook anchors the outer surface of the opposite cortex



Screw insertion

Insert cortical screw Ø3.5.



V. POSTOPERATIVE TREATMENT

Postoperative treatment after locking plates does not differ from treatment after conventional stabilization.

VI. IMPLANT REMOVAL

In order to remove the screws, first unlock all locking screws from the plate. Then remove bone screws. This prevents the rotation of the plate while removing the last locking screw.

NOTE: After removing the tissues from the outer surface of plate and screws recesses, it is recommended to apply aiming block to the plate *(see point. IV.3)*. **The use of a protective guide will ensure that: the screwdriver is positioned in the screw axis, the device is correctly placed in the screw recess and that the risk of twisting the recess while removing the screw is reduced.**