

ChM[®]

5.0 ChM Locked Plating
5.0 ChLP system

5.0ChLP Posterior tibia plate


































3.7094

3.7095

- *IMPLANTS*
- *INSTRUMENT SET 15.0205.201*
- *SURGICAL TECHNIQUE*



SYMBOLS DESCRIPTION

	Titanium or titanium alloy		H length [mm]
	Cobalt		Angle
	Left		available lengths
	Right		Available number of holes
	Available versions: left/right		Thickness [mm]
	Length		Scale 1:1
	Torx drive		Number of threaded holes in the shaft part of the plate
	Torx drive cannulated		Number of locking holes in the plate
	Hexagonal drive		Variable angle
	Hexagonal drive cannulated		Cortical
	Cannulated		Cancellous
	Locking		Available in sterile/ non- sterile condition
	Diameter [mm]		Refer to surgical technique
	Caution - pay attention to a special procedure.		
	Perform the activity under X-Ray control.		
	Information about the next stages of a procedure.		
	Proceed to the next stage.		
	Return to the specified stage and repeat the activity.		
	Before using the product, carefully read the Instructions for Use. It contains, among others, indications, contraindications, side effects, recommendations and warnings related to the use of the product.		
	The above description is not a detailed instruction of conduct. The surgeon decides about choosing the operating procedure.		

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The manufacturer reserves the right to introduce design changes.
 Updated INSTRUCTIONS FOR USE are available at the following website: ifu.chm.eu

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1. INTRODUCTION

This surgical technique applies to 5.0ChLP locked plating system used for proximal tibia osteosynthesis. The plates are a part of the ChLP locked plating system developed by **ChM**. The presented range of implants is made of materials in accordance with ISO 5832 standards.

The system for the proximal tibia treatment includes:

- implants (*plates and screws*),
- instrument set used for plates implantation,
- surgical technique.

Indications

The plates are used to treat:

- comminuted proximal tibia fractures,
- articular fractures of condyle,
- mal-unions and non-unions.

Plate selection and shaping

The plates are available in various lengths and widths. This allows for optimal selection of the implant to the fracture type. Shaping of the plates is not allowed.



Before using the product, carefully read the Instructions for Use supplied with the product. It contains, among others, indications, contraindications, side effects, recommendations and warnings related to the use of the product.



The above description is not a detailed instruction of conduct. The surgeon decides about choosing the operating procedure.

2. IMPLANT DESCRIPTION

Posterior tibia plates are a part of 5.0ChLP system. This system includes also compatible locking screws. To facilitate the identification, both titanium plate and screws are brown anodized. SURGICAL TECHNIQUE

New locking hole design:

- the screws heads do not protrude above the surface of the plate what significantly reduces the irritation of periimplant tissues,
- increased strength of the screw-to-plate threaded connection,
- bottom press part reduces surface area of the contact with the bone.

Cut in the proximal part:

- limited implant-to-bone contact,
- better visibility of the bone fragments,
- facilitated bone fragments reduction.

Aiming block:

- designed for narrow and wide plates,
- fast, collision-free insertion of screws in pre-determined directions.



Oval-shaped compression hole:

- convenient plate positioning,
- compression possibility.

Holes for Kirschner wires in epiphyseal and shaft parts:

- easier plate positioning,
- temporary plate stabilization.

Variable profile of the upper edge of the plate:

- plate reinforcement around the compression hole,
- soft edges limiting soft tissue irritation.

Bottom undercuts of the shaft part:

- limited bone-to-plate contact,
- better blood circulation of periimplant tissues.

Proximal screws in the epiphyseal part:

- divergent - optimal biomechanical stability of the fragments,
- support of the articular surface.



Inclined screws in the epiphyseal part:

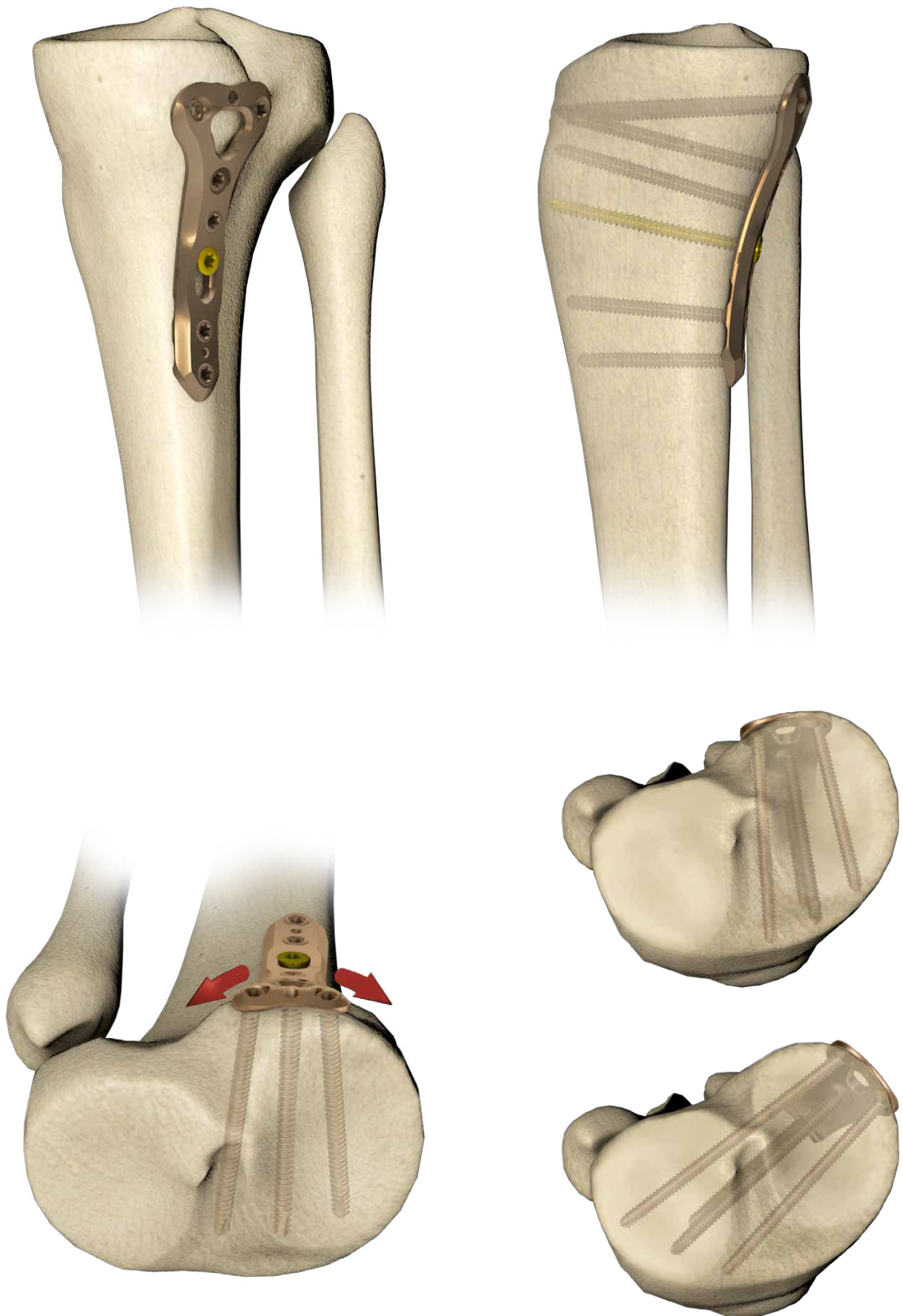
- form a stable, triangular structure that ensures safe fracture immobilisation.



Two width variants:

- possibility of plate selection to the type of fracture and bone size.

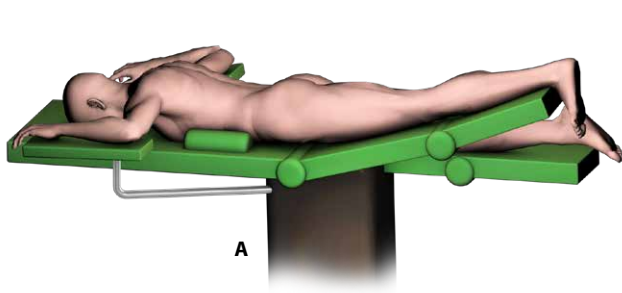




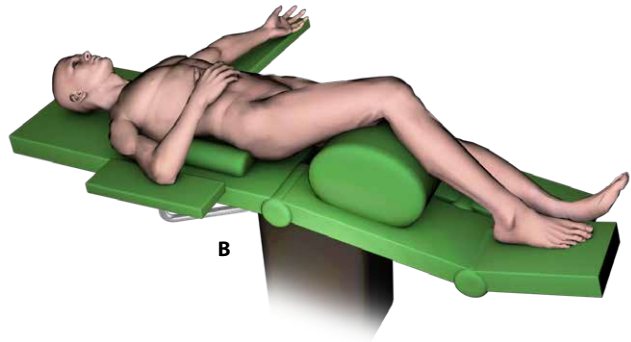
3. SURGICAL TECHNIQUE

3.1. PATIENT'S POSITIONING

Depending on the surgical approach, it is recommended to position a patient on their abdomen (A) with the knee elevated above the opposite knee level, or in the supine position (B) with the knee bent by an angle of about 30°. Make sure the position allows taking adequate X-Ray image in the lateral and anterior-posterior (AP) projection.



A

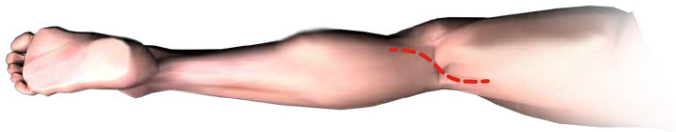


B

3.2. SURGICAL APPROACH

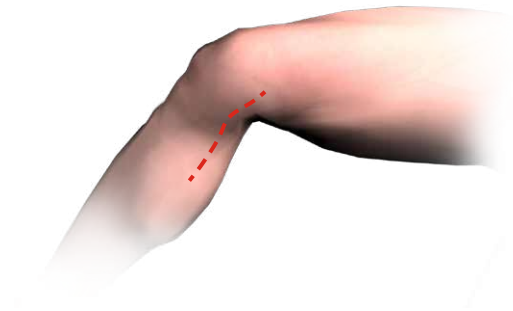
For a patient placed on the stomach, perform a gentle S-shaped incision through the popliteal fossa. The incision in the length of about 8cm proximally and 8cm distally from the line of the knee joint should be performed.

Posterior approach



For a patient placed supine, perform a straight or slightly curved incision from the medial femoral epicondyle posteromedially to the edge of the tibia. If needed, the incision can be extended both proximally and distally.

Posterior-medial approach



3.3. FRACTURE REDUCTION





Perform fracture reduction. If need be, temporarily stabilize the bone fragments with Kirschner wires and/or reduction pliers.

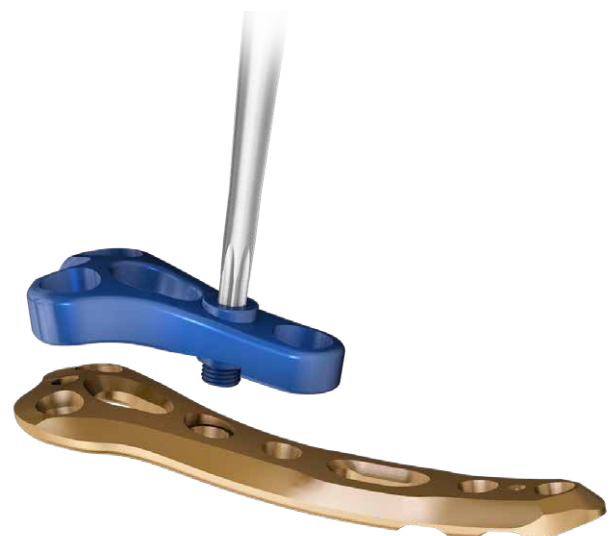
3.4. IMPLANT SELECTION

Select the right size of the implant to the type of fracture, bone size and structure.

3.5. AIMING INSERT INSERTION

Attach appropriate aiming block to the plate by tightening the fixing screw of the block using screwdriver tip T15 [40.5677.000].

plate 3.7094:		40.8224.000
plate 3.7095:		40.8225.000
		40.6654.000
		40.5677.000



Most ChLP locking plates are available with aiming blocks as additional supplementary instruments. The use of aiming blocks ensures proper guide sleeves locking in the plates epiphyseal locking holes. Aiming blocks facilitate also the surgery procedure, shorten its time and ensure drilling in the axis of the locking hole.



Not using aiming blocks may lead to improper device implantation. Incorrectly locked screws can cause complications when removing the plates.

3.6. PLATE INSERTION

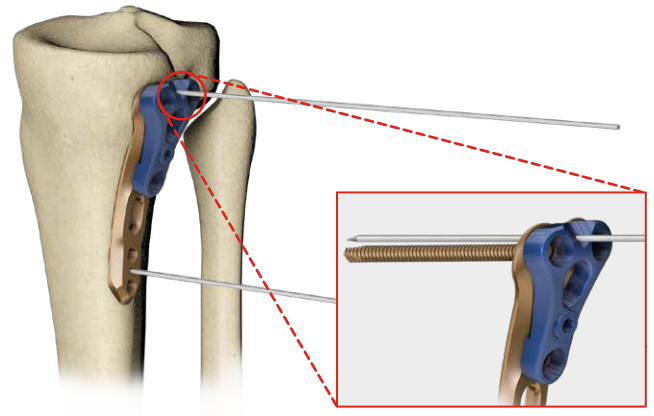
Position the implant correctly on the bone.

3.7. TEMPORARY PLATE STABILIZATION

Stabilize the position of the implant inserting Kirschner wires into appropriate holes or using setting-compressing screw (*acc. to procedure 4a*).

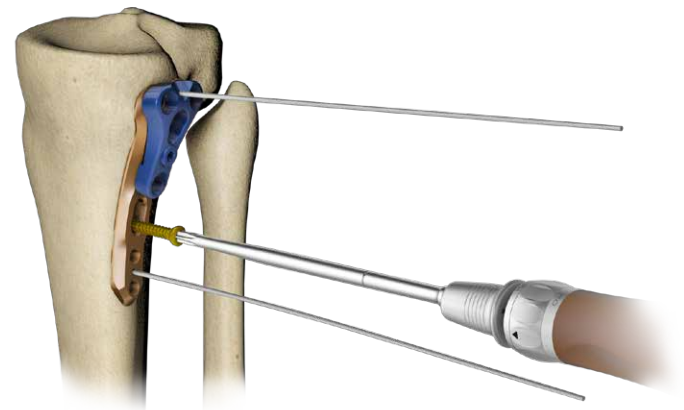


Kirschner wire inserted proximally (*through the aiming block*) presents (*in the lateral view*) the plane of the screws supporting the articulation surface.



3.8. CORTICAL SCREW INSERTION

Insert cortical self-tapping screw 3.5 [3.1306] into the oval-shaped hole of the plate (*acc. to procedure 4b*).



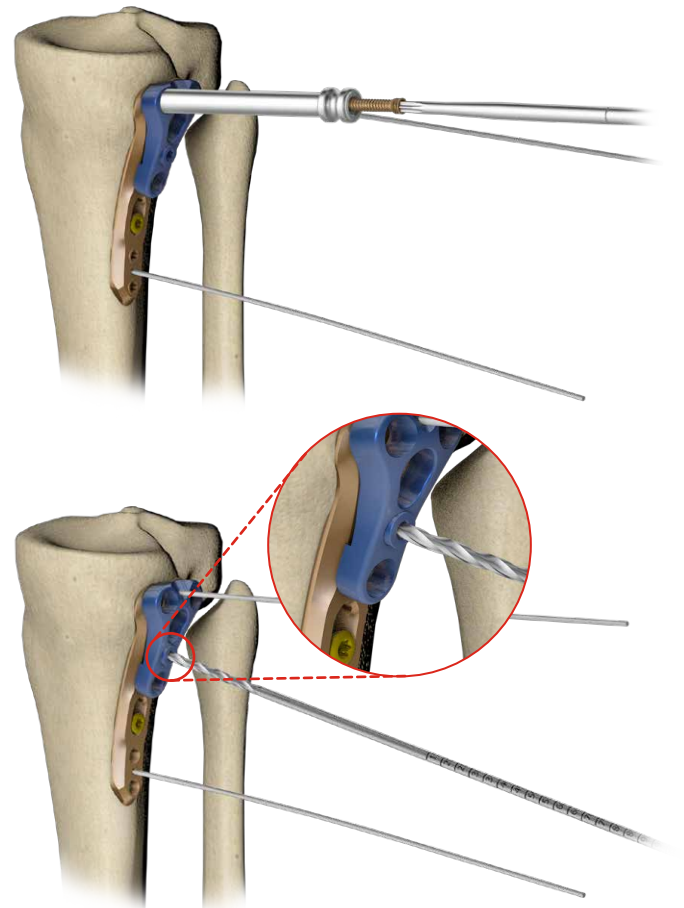
3.9. LOCKING SCREWS INSERTION IN THE EPIPHYSEAL PART OF THE PLATE

Insert protective guide 7/5 [40.5672] into the aiming block hole.



40.5672.000

Insert 5.0ChLP self-tapping screw 3.5 [3.5200] of a suitable length, through the guide, into the locking holes of the epiphyseal part of the plate (*acc. to procedure 4c*).



The cannulated fixing screw of the aiming block allows for hole drilling for locking screw insertion.

3.10. AIMING BLOCK REMOVAL

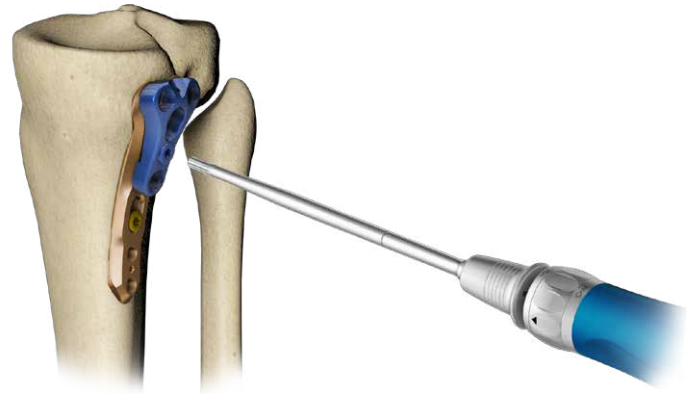
Loosen the fixing screw using screwdriver tip T15 **[40.5677.000]** and remove the aiming block from the plate.



40.6654.000

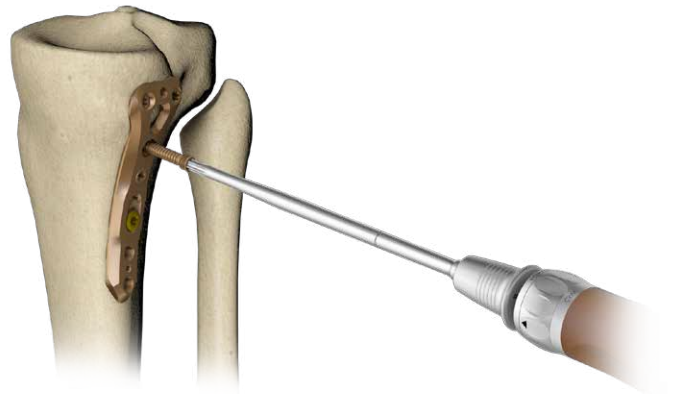


40.5677.000



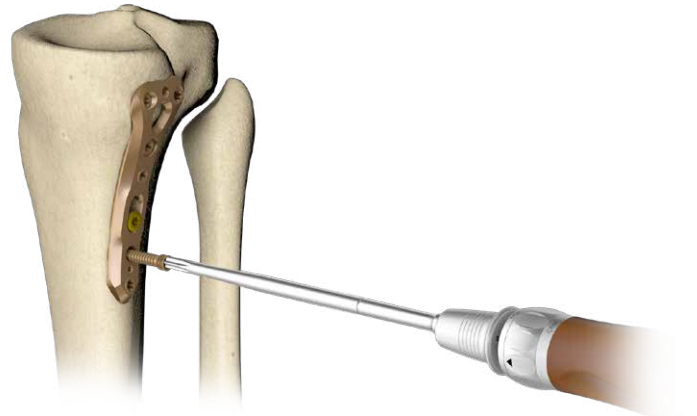
3.11. INSERTION OF THE INCLINED LOCKING SCREW

Having removed the aiming block, insert a 5.0ChLP self-tapping screw 3.5 **[3.5200]** (acc. to procedure 4c).



3.12. INSERTION OF LOCKING SCREW IN THE SHAFT PART OF THE PLATE

Insert 5.0ChLP self-tapping screws 3.5 **[3.5200]** of an appropriate length into the locking holes of the shaft part of the plate (acc. to procedure 4c).



3.13. WOUND CLOSURE

Before closing the wound, take an X-Ray image in at least two projections to confirm implant position and fracture reduction. Make sure all the screws are properly tightened and do not penetrate the joint surface.

Use appropriate surgical technique to close the wound.

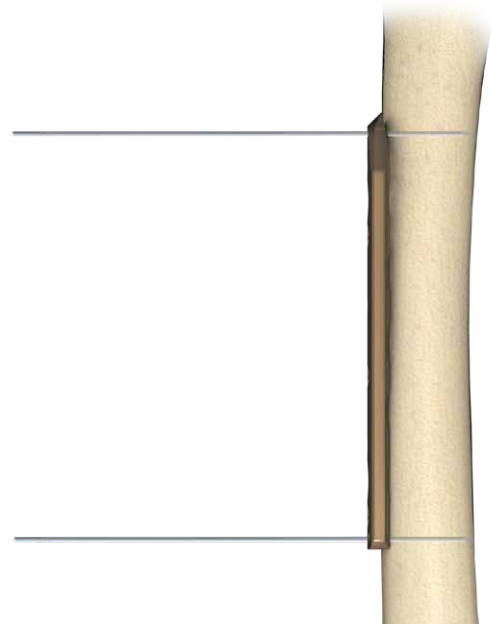


4. SURGICAL PROCEDURES

4.a. PROCEDURE OF TEMPORARY IMPLANT STABILIZATION

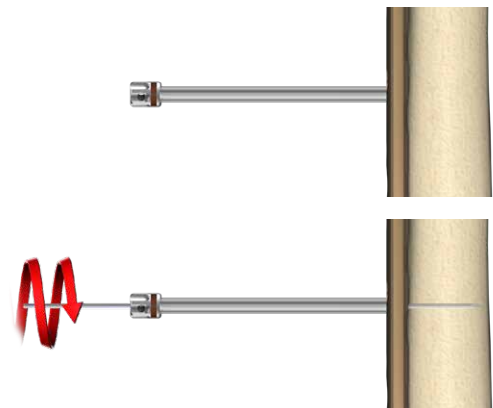
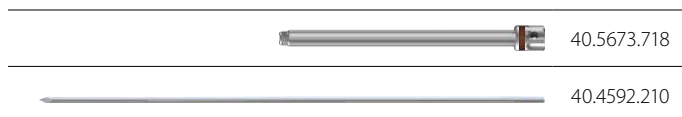
Stabilization using Kirschner wires

- Stabilize temporary the implant inserting Kirschner wires 1.5/210 **[40.4592.210]** into dedicated holes in the plate.



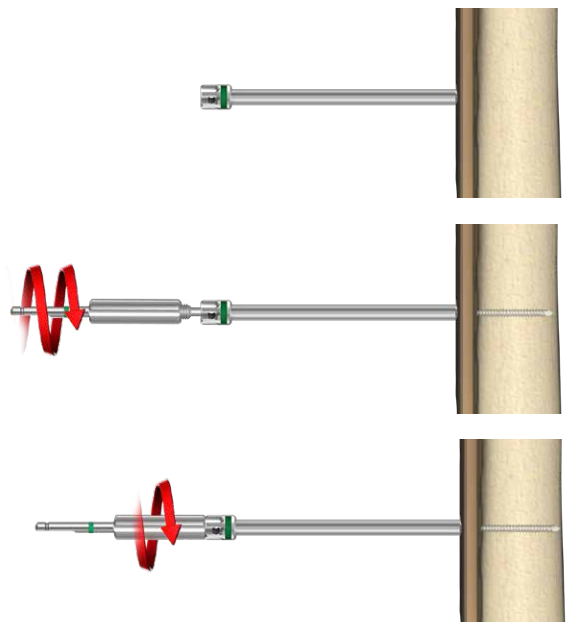
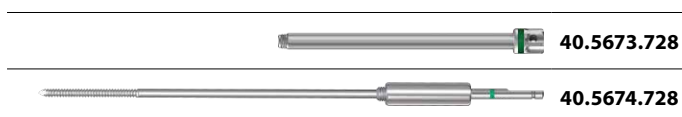
Stabilization in locking holes using Kirschner wires

- Insert guide sleeve 5.0/1.8 **[40.5673.718]** into the locking hole of the plate.
- Insert Kirschner wire **[40.4592.210]** through the guide sleeve 5.0/1.8 **[40.5673.718]**.



Stabilization using setting-compressing screw

- Insert guide sleeve 5.0/2.8 **[40.5673.728]** into the locking hole of the plate.
- Insert setting-compressing screw 2.8/180 **[40.5674.728]** through the guide sleeve 5.0/2.8 **[40.5673.728]**.
- Tighten the nut of the setting-compressing screw **[40.5674.728]** and push the plate to the bone.



4.b. PROCEDURE OF CORTICAL SELF-TAPPING SCREW 3.5 [3.1306] INSERTION

Compression guide positioning

Position the compression guide 2.5 [40.4804.725] in a desired position:



NEUTRAL POSITION: Push the guide to the plate. It will position itself so as neutral insertion of the screw is allowed.

COMPRESSION POSITION: Do not push the guide and move it to the edge of the compression hole. The hole drilled in this position allows compressive insertion of the screw.

ANGULAR POSITION: Angular position of the guide may also be applied.

NEUTRAL POSITION



COMPRESSION POSITION

ANGULAR POSITION

Hole drilling

Perform a hole through both cortices for a cortical screw 3.5 insertion. For drilling, use drill with scale 2.5/210 [40.5912.212] and compression guide in a desired position.



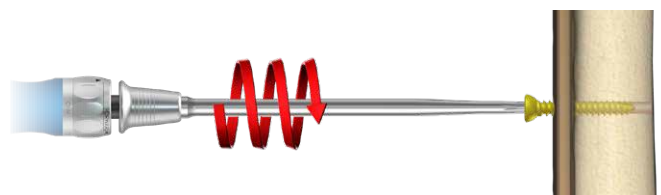
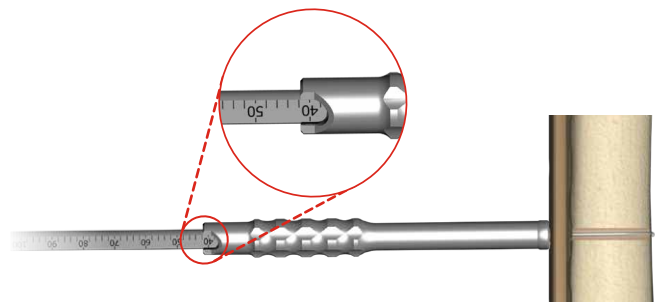
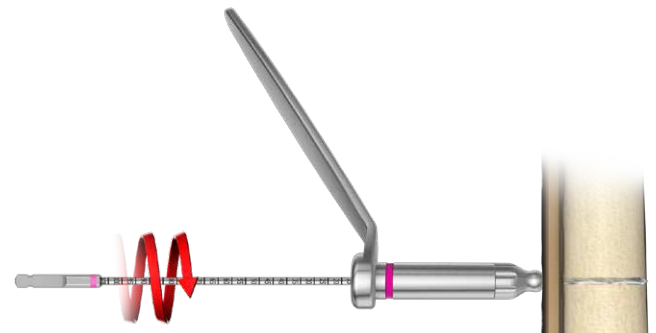
Measurement of hole depth

Insert depth measure [40.4639.550] into drilled hole until the hook of the measure rests against the outer surface of the second cortex.



Screw insertion

Insert cortical screw using handle ratchet device [40.6654.000] and screwdriver tip T15 [40.5677.000].



4.c. PROCEDURE OF 5.0ChLP SELF-TAPPING SCREW 3.5 [3.5200] INSERTION

Guide sleeve insertion

- Insert guide sleeve 5.0/2.8 [40.5673.728] into a locking hole of the plate.



Hole drilling

Drill using drill with scale 2.8/210 [40.5653.212] until desired depth is reached.



Measurement of hole depth

OPTION I: Read the length of the screw from the drill measure [40.5653.212]



OPTION II: or use screw length measure [40.5675.500].



OPTION III: Having removed the guide sleeve 5.0/2.8 [40.5673.728], use depth measure [40.4639.550] to determine the length of a screw.

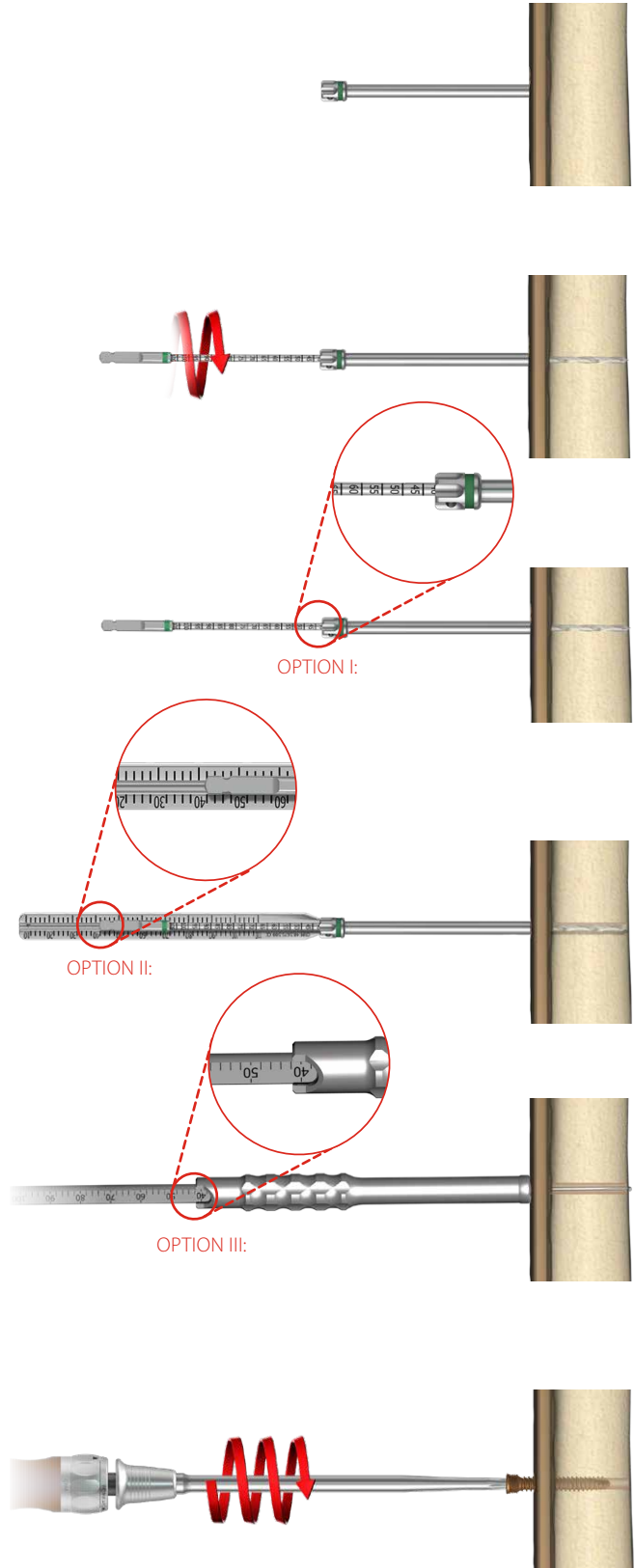


Screw insertion

Remove the guide sleeve 5.0/2.8 [40.5673.728]. Use torque limiting ratchet handle 2Nm [40.6652.000] and screwdriver tip T15 [40.5677.000] to insert the locking screw.



The final tightening of the locking screw, especially when a drive is used, should always be performed with the use of torque limiting handle. Failure to use the torque limiting handle may lead to intraoperative and postoperative complications (*during later removal of the plate and locking screws*).



5. POSTOPERATIVE PROCEDURE

Introduce appropriate postoperative treatment. The physician decides on the post-operative treatment and its conduct. In order to avoid patient's movement limitations, introduce exercises as soon after surgery as possible. However, make sure that the limb is not fully loaded before fragments osteosynthesis is complete.

6. IMPLANT REMOVAL

The physician decides about implant removal. In order to remove the implants from the body, unlock all the locking screws first and then remove them from the bone. This will prevent any rotation of the plate when removing the last locking screw.



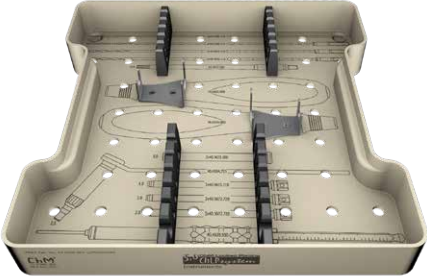












Having cleaned the outer surface of the plate and the screws sockets, it is recommended to attach the aiming block to the plate. Using aiming block and protective sleeve ensures positioning of the screwdriver tip in the axis of the screw, its full placement in the recess, and reduces the risk of twisting the screw while removing.







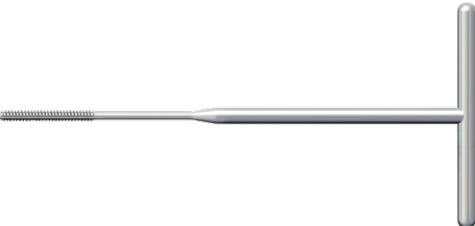

7. CATALOGUE PAGES

7.a. INSTRUMENT SET

Instrument set for 5.0ChLP 4x4 1/2H

15.0205.201

	Name	Catalogue No.	Pcs
	Tray for 5.0ChLP instrument set 4x4 1/2H	14.0205.201	1
	Kirschner wire 1.5/210	40.4592.210	4
	Drill 1.8/210	40.2063.212	2
	Drill with scale 2.5/210	40.5912.212	2
	Drill with scale 2.8/210	40.5653.212	2
	Screwdriver tip T15	40.5677.000	1
	Torque limiting ratchet handle 2Nm	40.6652.000	1
	Handle ratchet device	40.6654.000	1
	Protective guide 7/5	40.5672.000	2
	Compression guide 2.5	40.4804.725	1
	Guide sleeve 5.0/1.8	40.5673.718	2
	Guide sleeve 5.0/2.8	40.5673.728	4
	Depth measure	40.4639.550	1

	Name	Catalogue No.	Pcs
	Tray for 5.0ChLP instrument set 4x4 1/2H	14.0205.202	1
	Setting-compressing screw 2.8/180	40.5674.728	1
	Screw length measure	40.5675.500	1
	Plates bender 5.0	40.4643.500	2
	Tripod screwdriver tip 5.0ChLP	40.6271.500	1
	T15 screwdriver tip with holder	40.6254.000	1
	Cortical tap HA 3.5 with handle	40.2548.200	1
	Tap 5.0ChLP-3.5	40.5661.000	1
Optional instrument			
	Torque connector 2Nm	40.5927.020	1

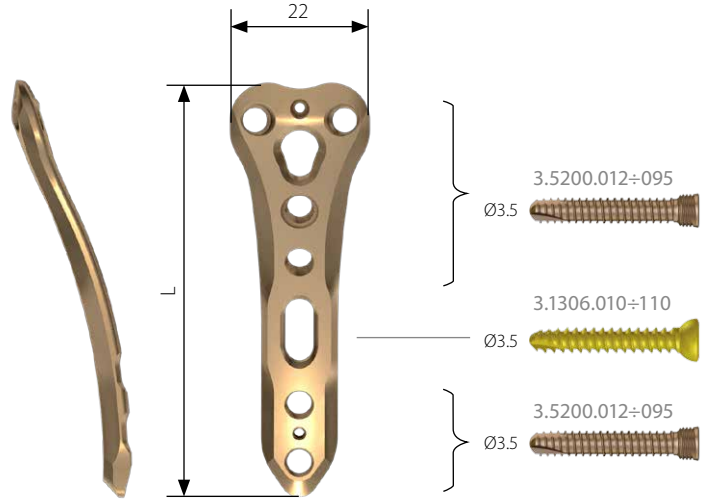
7.b. PLATES



5.0ChLP posterior narrow tibia plate

	Len	LR
4	66	3.7094.604
6	86	3.7094.606

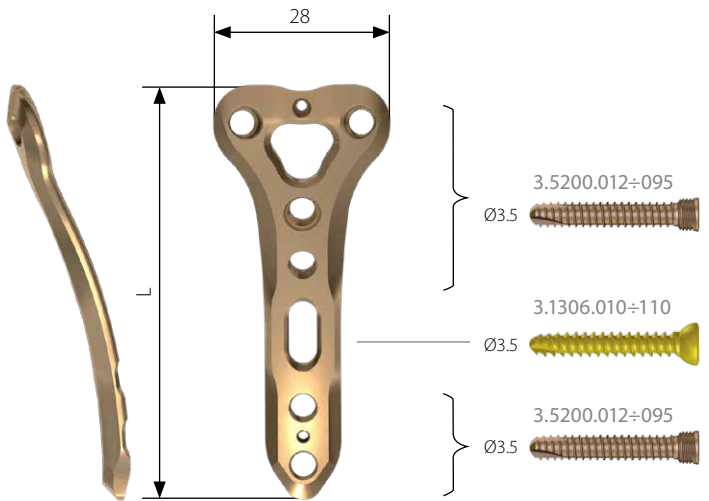
O - number of holes in the shaft part of the plate



5.0ChLP posterior wide tibia plate

	Len	LR
4	66	3.7095.604
6	86	3.7095.606

O - number of holes in the shaft part of the plate



Palette for 5.0ChLP plates 3.7094/3.7095 4x4 1/2H 14.0205.422



Aiming block [3.7094] 40.8224.000
Aiming block [3.7095] 40.8225.000

7.c. SCREWS



5.0ChLP self-tapping screw 3.5



Len	Ti
12	3.5200.012
14	3.5200.014
16	3.5200.016
18	3.5200.018
20	3.5200.020
22	3.5200.022
24	3.5200.024
26	3.5200.026
28	3.5200.028
30	3.5200.030
32	3.5200.032
34	3.5200.034
36	3.5200.036
38	3.5200.038
40	3.5200.040
42	3.5200.042
44	3.5200.044
46	3.5200.046
48	3.5200.048
50	3.5200.050
52	3.5200.052
54	3.5200.054
56	3.5200.056
58	3.5200.058
60	3.5200.060
65	3.5200.065
70	3.5200.070
75	3.5200.075
80	3.5200.080
85	3.5200.085

Cortical self-tapping screw 3.5



Len	Ti
10	3.1306.010
12	3.1306.012
14	3.1306.014
16	3.1306.016
18	3.1306.018
20	3.1306.020
22	3.1306.022
24	3.1306.024
26	3.1306.026
28	3.1306.028
30	3.1306.030
32	3.1306.032
34	3.1306.034
36	3.1306.036
38	3.1306.038
40	3.1306.040
45	3.1306.045
50	3.1306.050
55	3.1306.055
60	3.1306.060
65	3.1306.065
70	3.1306.070
75	3.1306.075
80	3.1306.080
85	3.1306.085

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