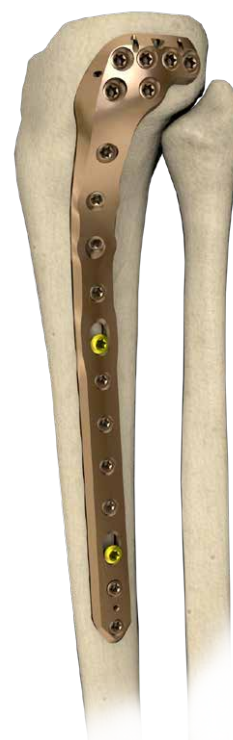





































5.0ChLP narrow tibial plate
3.4011.6xx; 3.4012.6xx

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



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

1. INTRODUCTION	5
2. IMPLANT FEATURES	6
3. SURGICAL TECHNIQUE	8
3.1. PATIENT'S POSITIONING	8
3.2. SURGICAL APPROACH	8
3.3. FRACTURE REDUCTION	8
3.4. IMPLANT SELECTION	8
3.5. USE OF AIMING BLOCK	9
3.6. PLATE INSERTION	9
3.7. TEMPORARY PLATE STABILIZATION	9
3.8. LOCKING SCREWS INSERTION IN THE EPIPHYSEAL PART OF THE PLATE	10
3.9. AIMING BLOCK REMOVAL	10
3.10. CORTICAL SCREWS INSERTION IN THE SHAFT PART OF THE PLATE	11
3.11. LOCKING SCREWS INSERTION IN THE SHAFT PART OF THE PLATE	11
3.12. WOUND CLOSURE	11
4. SURGICAL PROCEDURES	12
4a. PROCEDURE OF TEMPORARY IMPLANT STABILIZATION	12
4b. PROCEDURE OF CORTICAL SELF-TAPPING SCREW 3.5 [3.1306] INSERTION	13
4c. PROCEDURE OF 5.0ChLP SELF-TAPPING SCREW 3.5 [3.5200] INSERTION	14
4d. PROCEDURE OF 5.0ChLP SCREW VA 3.5 [4.5236] INSERTION	15
5. POSTOPERATIVE PROCEDURE	17
6. IMPLANT REMOVAL	17
7. CATALOGUE PAGES	18
7a. INSTRUMENT SET	18
7b. PLATES	20
7c. SCREWS	21

1. INTRODUCTION

This surgical technique applies to 5.0ChLP locked plating system used for stabilization of proximal tibia fractures. 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 includes:

- implants (*plates and screws*),
- instrument set used in the surgery,
- surgical technique.

Indications

- Comminuted fractures of the proximal tibia and fractures extending to the tibial shaft.
- Mal-unions and non-unions.

Plate selection and shaping

The plates are available in different lengths, separately for right and left side. This allows for optimal selection of the implant to the fracture type. Shaping of the plates in their epiphyseal part is not allowed.



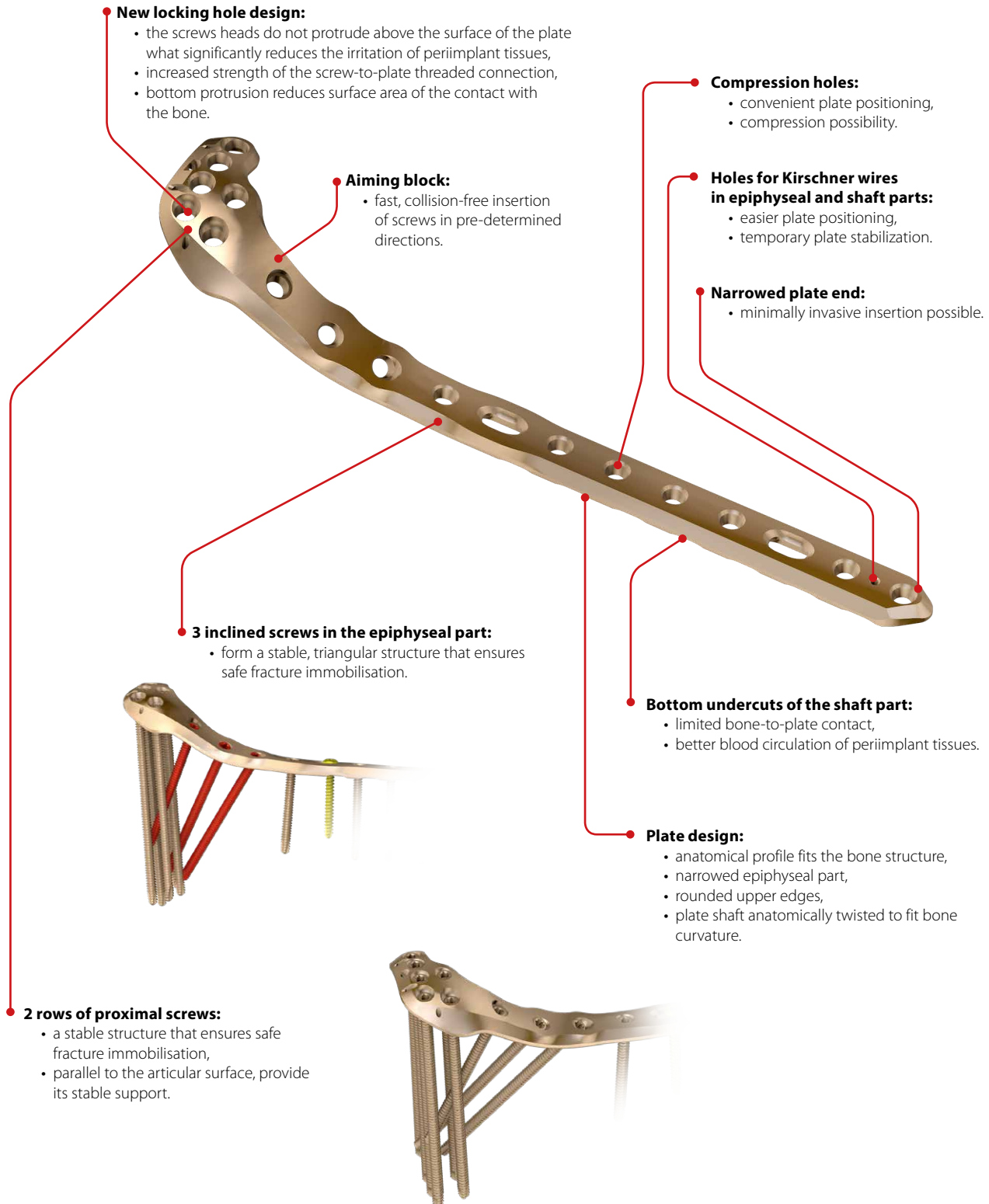
Before using the product, carefully read the Instructions for Use. It contains, among others, indications, contraindications, side effects, recommendations and warnings related to the use of the product.



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

2. IMPLANT FEATURES

Narrow tibial plates are a part of 5.0ChLP system. This system includes also compatible locking screws. To facilitate their identification, both titanium plate and screws are brown anodized.



5.0ChLP narrow tibial plate



3. SURGICAL TECHNIQUE

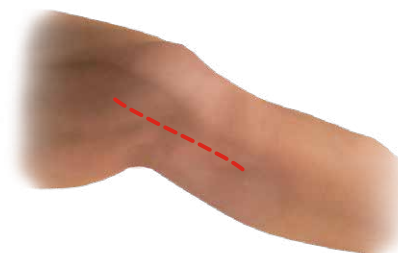
3.1. PATIENT'S POSITIONING

It is recommended to place a patient supine. Use surgical pillows to bend the leg by about 30°. Visualization of the proximal tibia under fluoroscopy in both the lateral and AP views is necessary.



3.2. SURGICAL APPROACH

Perform an anterolateral approach with incision between the tibia and fibula. The incision should begin approximately 1 cm proximally from the lateral tibial condyle at an appropriate length in relation to the plate.



A straight anterolateral incision - recommended for more complex articular fractures.



A lateral "S" incision - recommended when a simple articular fracture or extra-articular fracture are present.

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 an implant to the type of fracture, bone size and structure. Use plate trials **[43.4011.605]/[43.4012.605]** to determine the length of the implant.

Plate 3.4011.6xx trial
Plate 3.4012.6xx trial






43.4011.605
43.4012.605



3.5. USE OF AIMING BLOCK

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

plate 3.4011.6xx		40.8233.000
plate 3.4012.6xx		40.8232.000
		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 plate 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

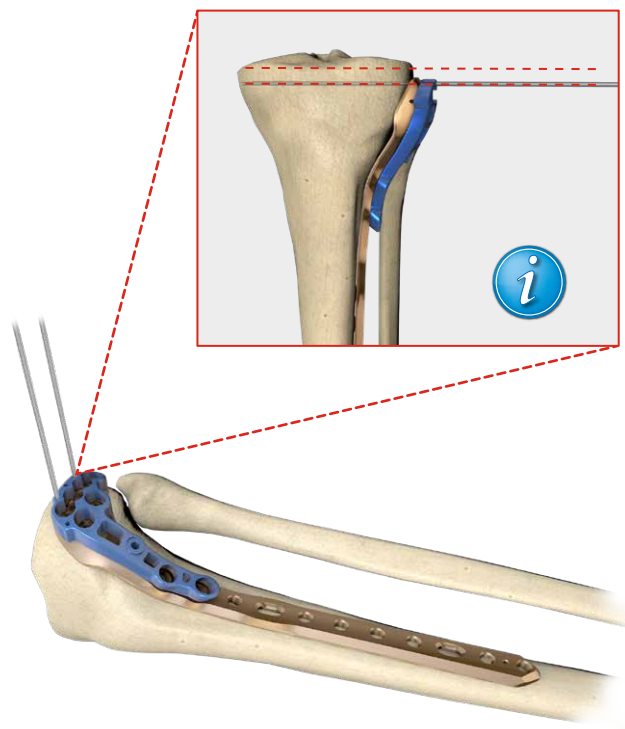
Position the implant correctly on the bone.

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 illustrates (in the A-P projection) the plane of the screws that support the joint surface.



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

Insert locking screws of a suitable length, into the locking holes of the plate.

- 5.0ChLP self-tapping screw 3.5 **[3.5200]** (acc. to procedure 4c).
Insert protective guide 7/5 **[40.5672]** into the aiming block hole.

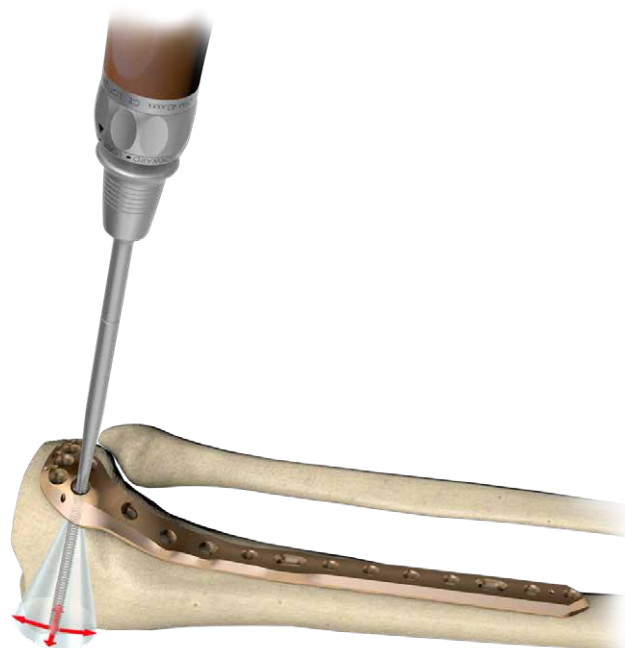
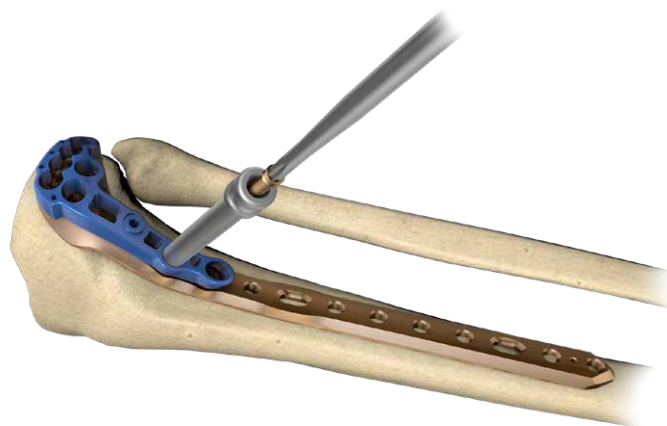

40.5672.000

Insert the self-tapping screw 3.5 **[3.5200]** through that guide.

- 5.0ChLP screw VA 3.5 **[3.5236]** (acc. to procedure 4d).


40.6652.000


40.5677.000

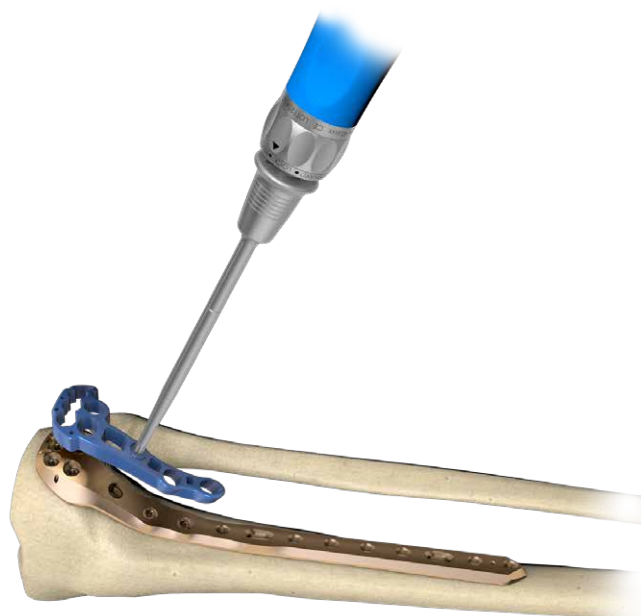


3.9. AIMING BLOCK REMOVAL

Use screwdriver tip T15 **[40.5677.000]** to remove the aiming block from the plate.

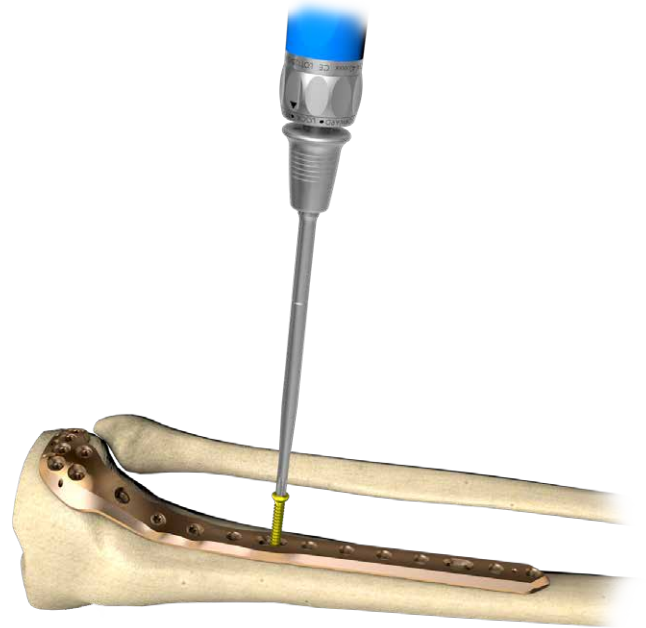

40.6654.000


40.5677.000



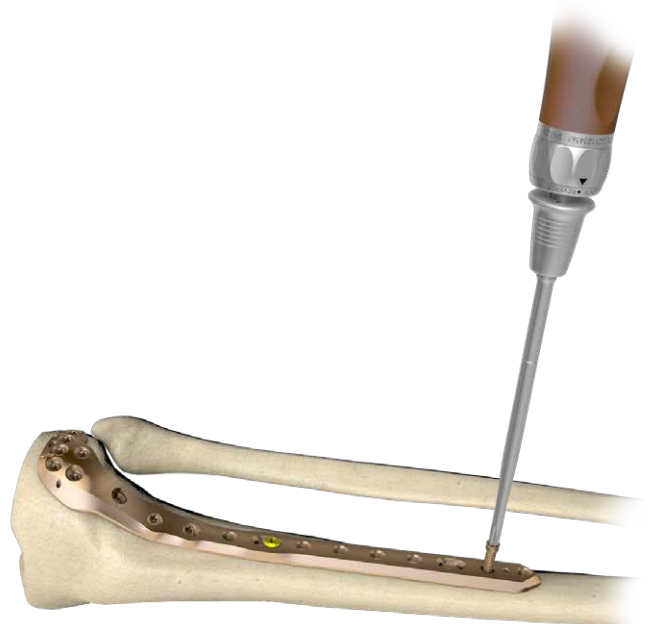
3.10. CORTICAL SCREWS INSERTION IN THE SHAFT PART OF THE PLATE

Insert cortical self-tapping screw 3.5 **[3.1306]** into the oval-shaped hole of the plate. If necessary, perform compression (*acc. to procedure 4b*). The doctor determines the order and number of screws to be inserted.



3.11. LOCKING SCREWS INSERTION IN THE SHAFT PART OF THE PLATE

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



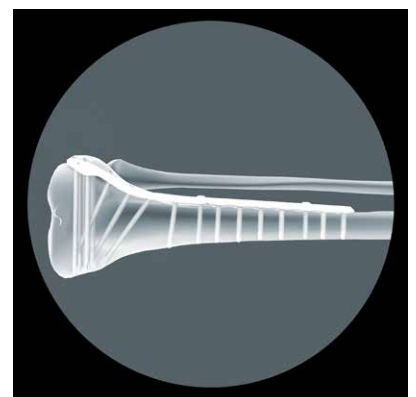
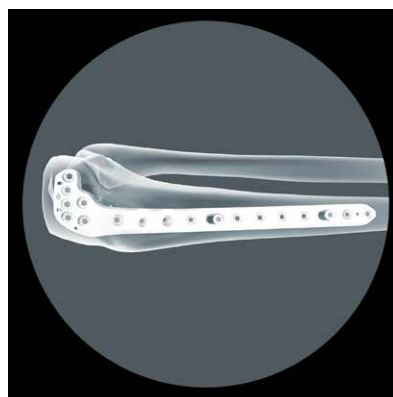
Insert the cortical screws 3.5 into a bone fragment before inserting the locking screws.



The doctor decides about the order and number of locking and cortical screws to be inserted.

3.12. 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.

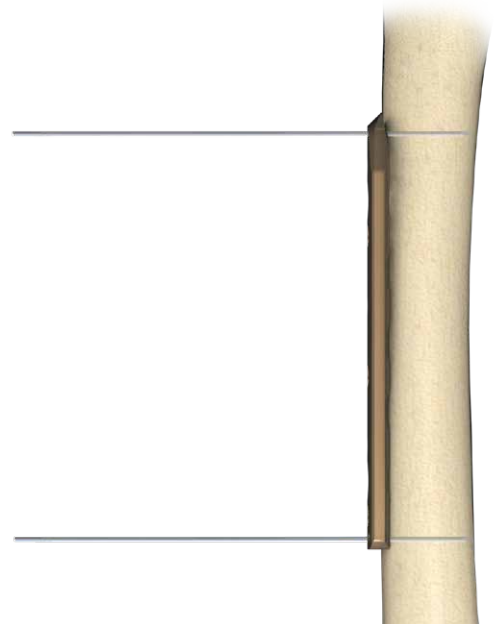


4. SURGICAL PROCEDURES

4a. PROCEDURE OF TEMPORARY IMPLANT STABILIZATION

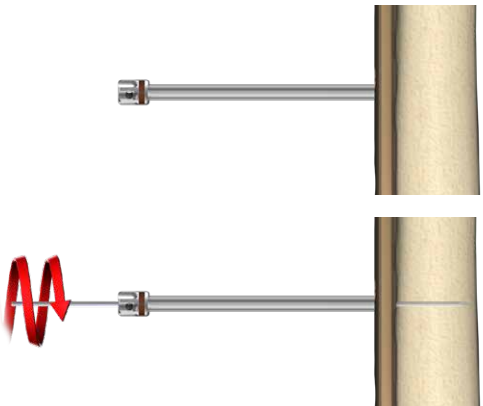
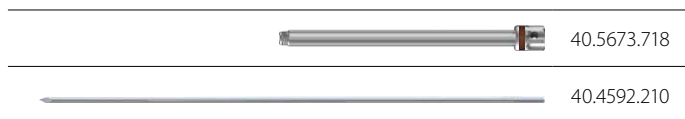
Stabilization using Kirschner wires

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



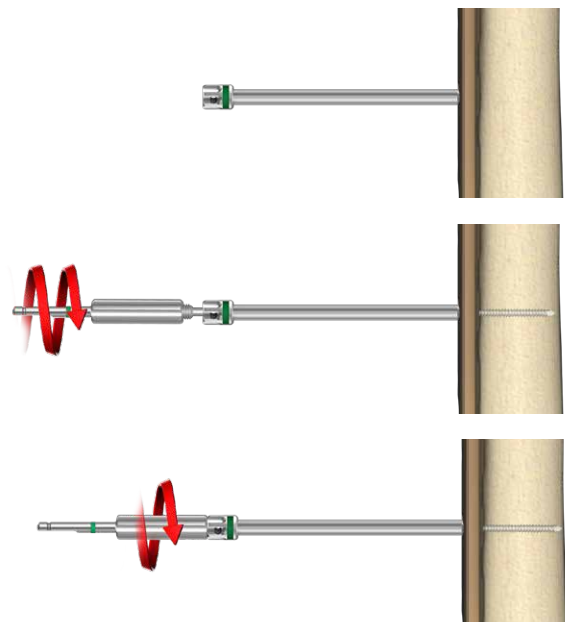
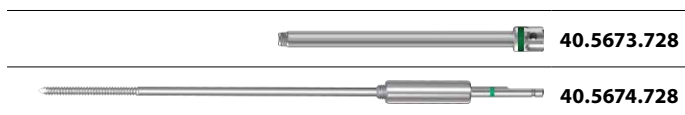
Stabilization in locking holes using Kirschner wires

- 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.



4b. 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.



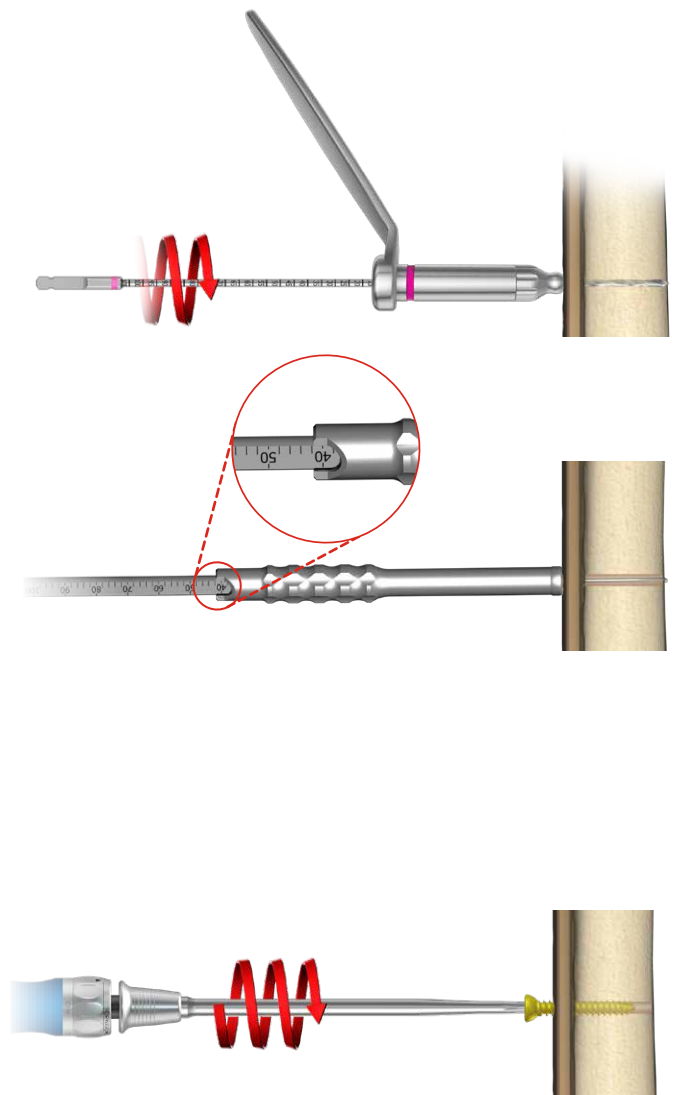
Measurement of hole depth

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].



4c. 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.



40.5673.728

Hole drilling

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



40.5653.212

Measurement of hole depth

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



40.5653.212

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



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.



40.4639.550

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.



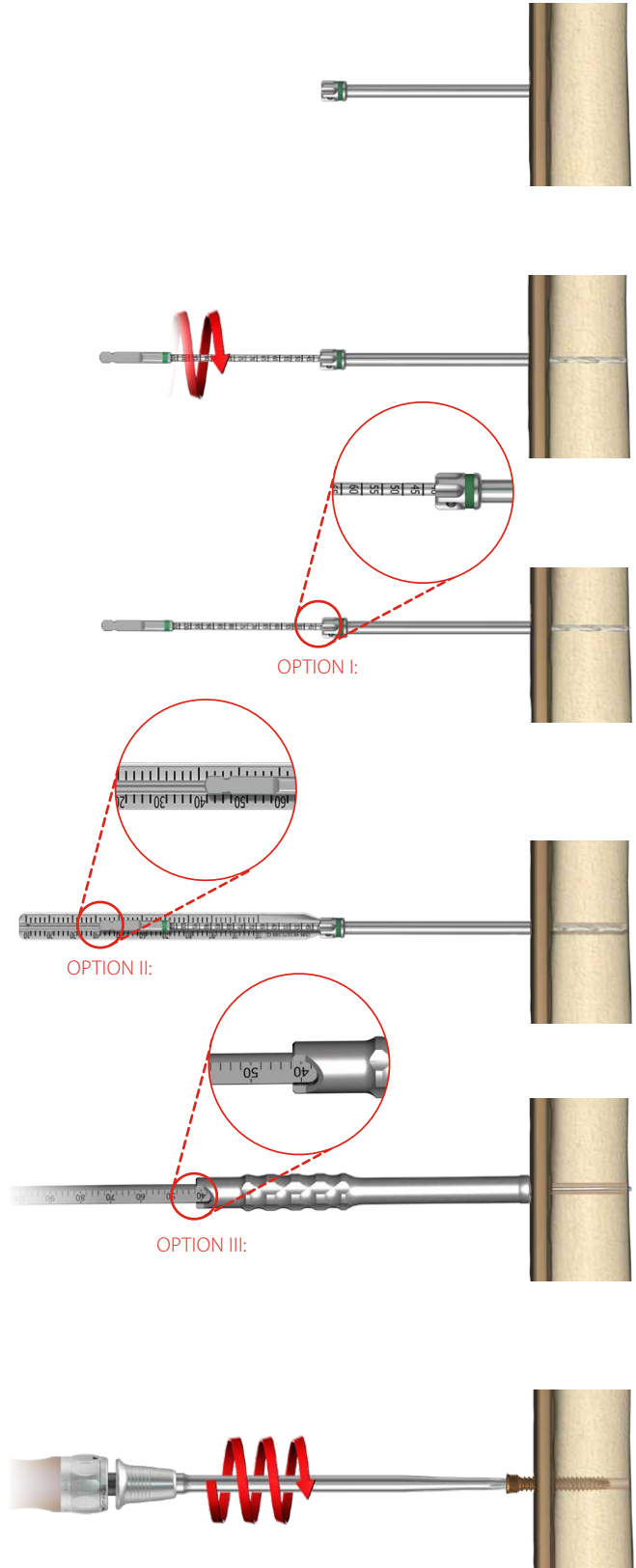
40.6652.000



40.5677.000



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*).



4d. PROCEDURE OF 5.0ChLP SCREW VA 3.5 [4.5236] INSERTION



When using variable angle (VA) screws, there is a risk of collision of screws or a drill with already implanted screws. Well-thought-out trajectory of inserted screws and intraoperative X-Ray control of drilling reduces the risk of the collision.

Guide VA positioning

- Insert the guide VA 2.8 [40.8206.028] into the locking hole co-axially.
- Set the desired inclination of the guide in relation to the locking hole axis. The guide enables the inclination of 15° in each direction with respect to the axis of the locking hole.



40.8206.028



Exceeding the inclination angle of more than 15° may prevent proper locking of the VA screw in the plate hole.

Hole drilling

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



40.5653.212



Drill under X-Ray control to avoid a collision of the drill with already implanted screws.

Measurement of hole depth

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



40.5653.212

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

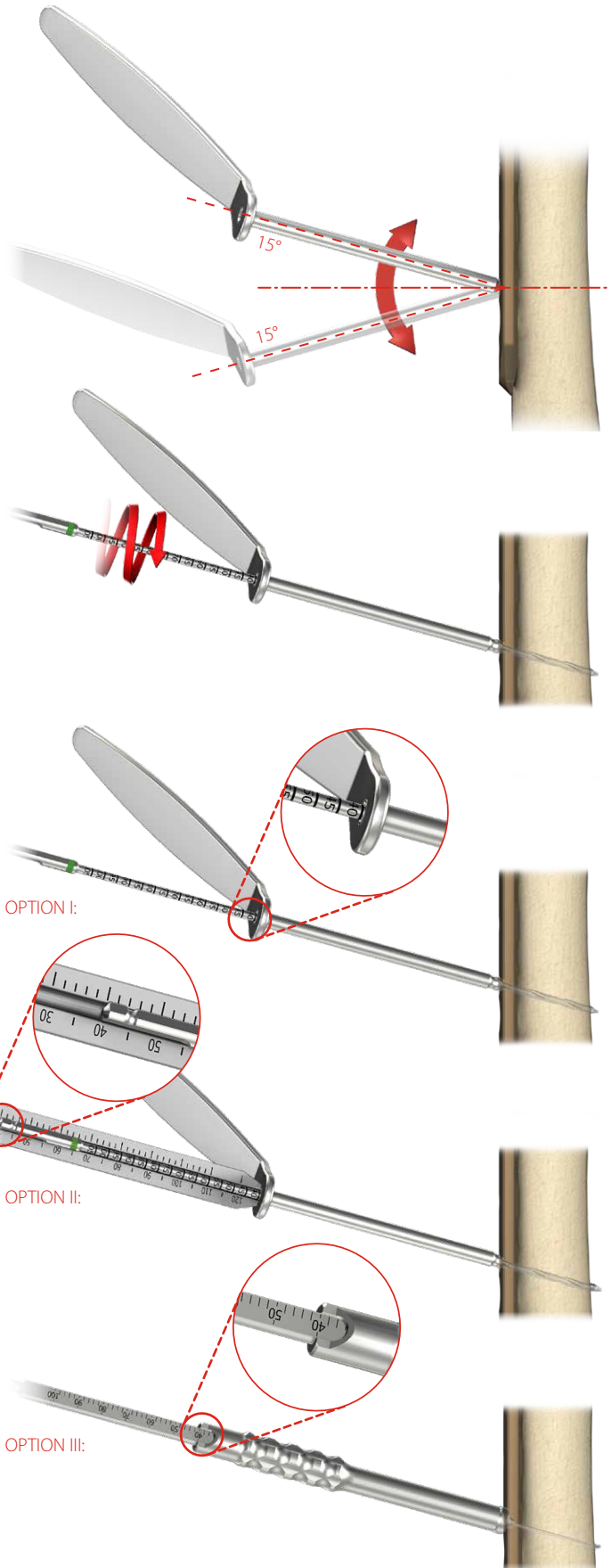


40.5675.500

OPTION III: Having removed the guide VA, use depth measure [40.4639.550] to determine the length of the screw.

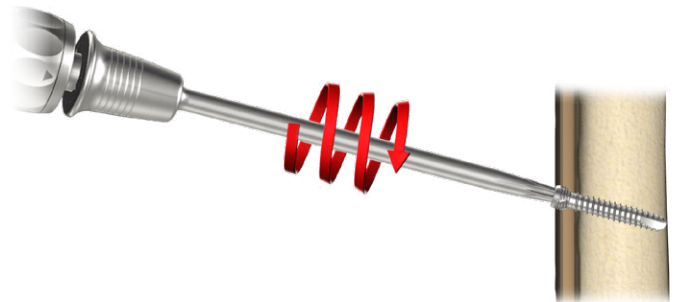
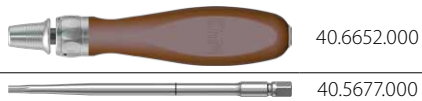


40.4639.550

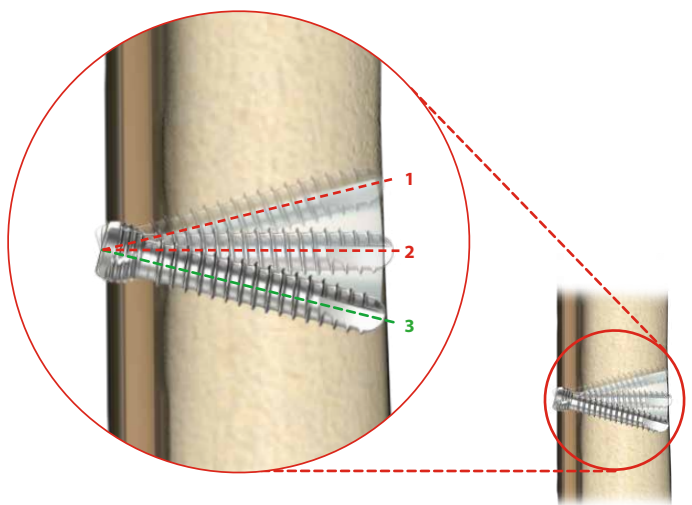
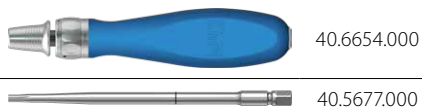


Screw insertion

Use torque limiting ratchet handle 2Nm **[40.6652.000]** and screwdriver tip T15 **[40.5677.000]** to insert the VA screw.



When using torque limiting handle to tighten the VA screw with large inclination in relation to the axis of the locking hole, the head of the screw may protrude above the plate. In this case, it may be necessary to use a handle ratchet device **[40.6654]** and screwdriver tip T15 **[40.5677]**. Use the instruments carefully to tighten the VA screw. Avoid damaging the screw socket or screwdriver tip. Do not insert the screw too deep into the plate.



Change of the VA screw positioning



It is possible to lock the VA screw three times in the threaded hole of the plate. The hole in the plate in which the VA screw was locked cannot be used to insert a standard locking screw.

5. POSTOPERATIVE PROCEDURE

Introduce appropriate post-operative 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.









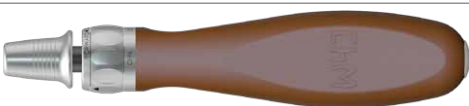
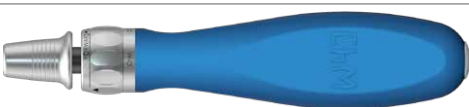






Having cleaned the outer surface of the plate and the screws sockets, it is recommended to attach the aiming block to the plate. Using aiming block and protective sleeve ensures positioning of the screwdriver tip in the axis of the screw, its full placement in the recess, and reduces the risk of twisting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

7. CATALOGUE PAGES

7a. INSTRUMENT SET







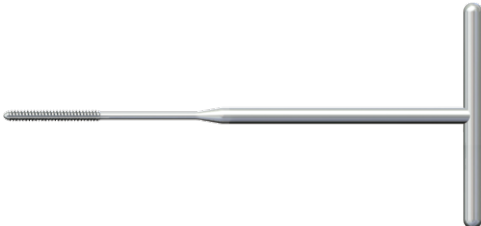

Instrument set for 5.0ChLP 4x4 1/2H

15.0205.206

	Name	Catalogue No.	Pcs
	Tray for 5.0ChLP instrument set 4x4 1/2H	14.0205.206	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
	Guide VA 2.8	40.8206.028	1
	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





Instrument set for 5.0ChLP 4x4 1/2H

15.0205.202

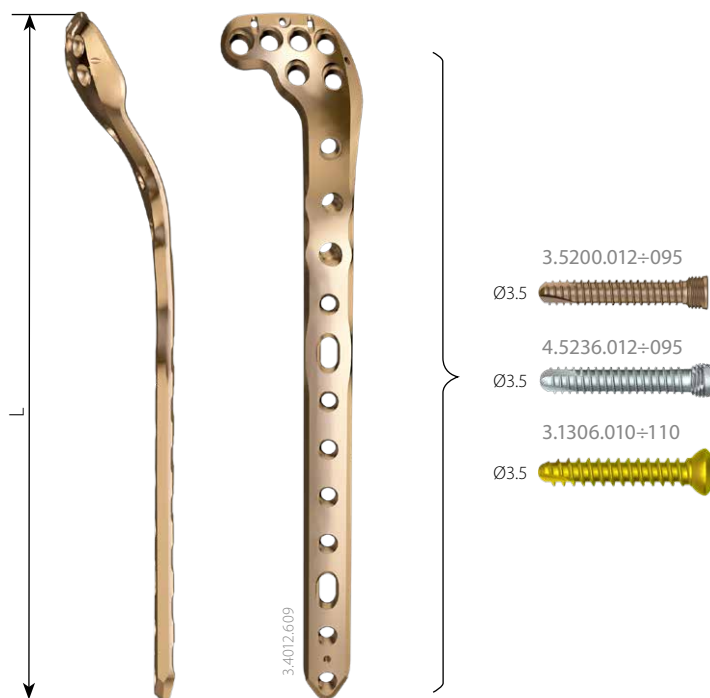
	Name	Catalogue No.	Pcs
	Tray for 5.0ChLP instrument set 4x4 1/2H	14.0205.202	1
	Setting-compressing screw 2.8/180	40.5674.728	1
	Screw length measure	40.5675.500	1
	Plates bender 5.0	40.4643.500	2
	Tripod screwdriver tip 5.0ChLP	40.6271.500	1
	T15 screwdriver tip with holder	40.6254.000	1
	Cortical tap 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



5.0ChLP narrow tibial plate

			
1	74	3.4011.601	3.4012.601
3	100	3.4011.603	3.4012.603
5	126	3.4011.605	3.4012.605
7	152	3.4011.607	3.4012.607
9	178	3.4011.609	3.4012.609
11	204	3.4011.611	3.4012.611
13	230	3.4011.613	3.4012.613
15	256	3.4011.615	3.4012.615
17	282	3.4011.617	3.4012.617

O - holes number in shaft part of the plate

Tray for plates 5.0ChLP 3.4011/4012.6xx 4x4 1/2H **14.0205.427**


Aiming block R (3.4012.6xx) 40.8232.000

Aiming block L (3.4011.6xx) 40.8233.000

Plate 3.4012.605 trial 43.4012.605

Plate 3.4011.605 trial 43.4011.605


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

5.0ChLP screw VA 3.5

	Len	Co
	12	4.5236.012
	14	4.5236.014
	16	4.5236.016
	18	4.5236.018
	20	4.5236.020
	22	4.5236.022
	24	4.5236.024
	26	4.5236.026
	28	4.5236.028
	30	4.5236.030
	32	4.5236.032
	34	4.5236.034
	36	4.5236.036
	38	4.5236.038
	40	4.5236.040
	42	4.5236.042
	44	4.5236.044
	46	4.5236.046
	48	4.5236.048
	50	4.5236.050
	52	4.5236.052
	54	4.5236.054
	56	4.5236.056
	58	4.5236.058
	60	4.5236.060
	65	4.5236.065
	70	4.5236.070
	75	4.5236.075
	80	4.5236.080
	85	4.5236.085

Cortical self-tapping screw 3.5

	Len	Ti
	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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