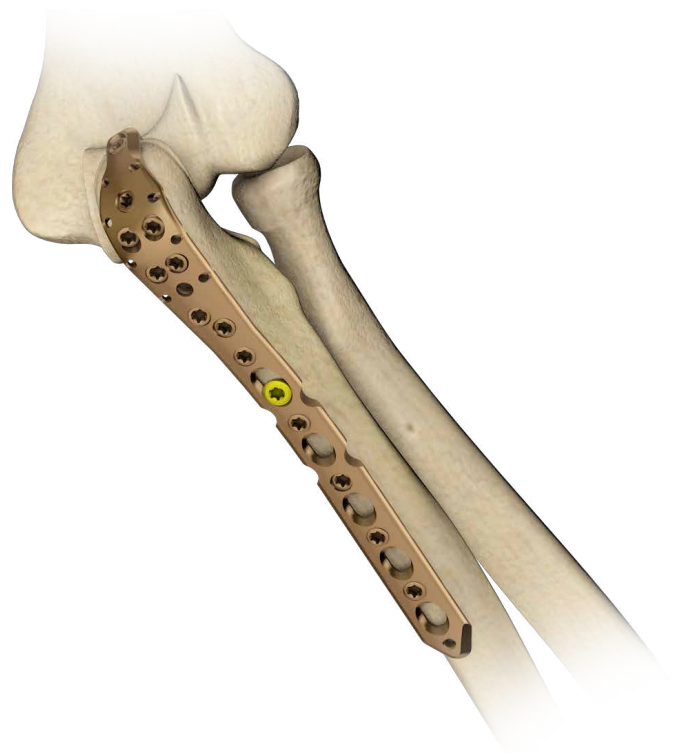


ChM[®]



























5.0 ChM Locked Plating
5.0 ChLP system








5.0ChLP olecranon plate
3.4097; 3.4098

- *IMPLANTS*
- *INSTRUMENT SET*
- *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. |

www.chm.eu

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 Review date P-001-08.12.2020

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 stabilization of proximal ulna 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

- intra-articular and extra-articular fractures of the proximal ulna,
- fractures of the proximal ulna extending to the shaft,
- mal-, and non-unions,
- corrective osteotomies.

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.



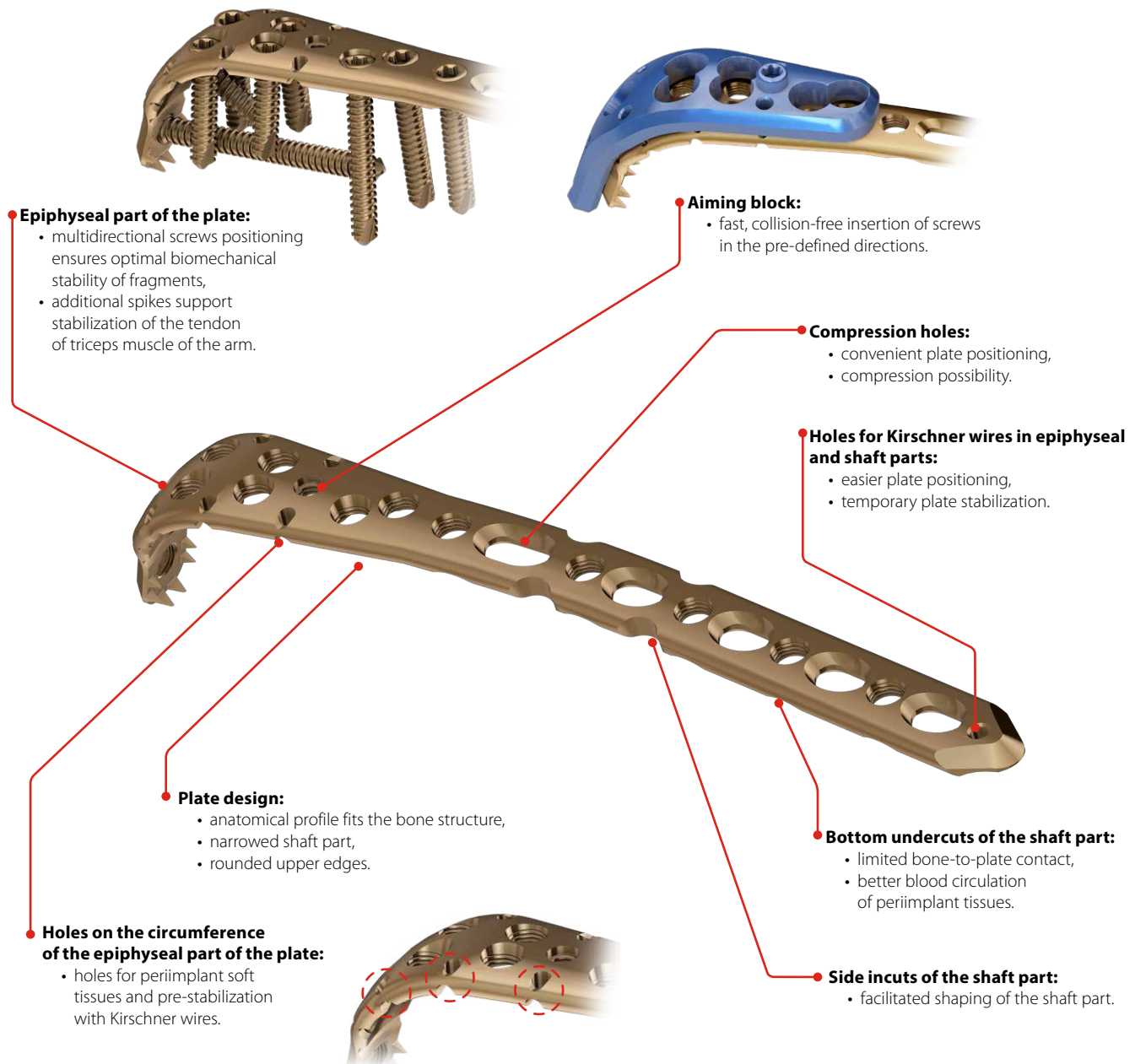
Before using the product, carefully read the Instructions for Use. It contains, among others, indications, contraindications, side effects, recommendations and warnings related to the use of the product.



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

2. IMPLANT DESCRIPTION

Olecranon 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.



5.0ChLP OLECRANON PLATE

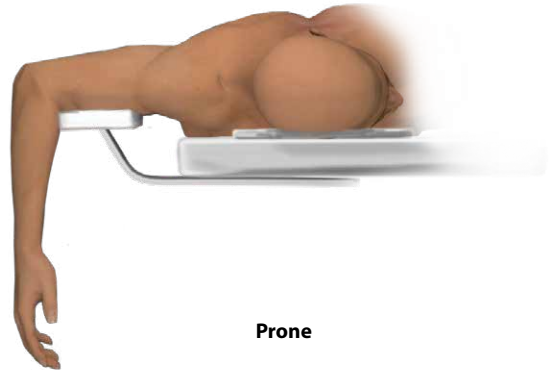


3. SURGICAL TECHNIQUE

3.1. PATIENT'S POSITIONING

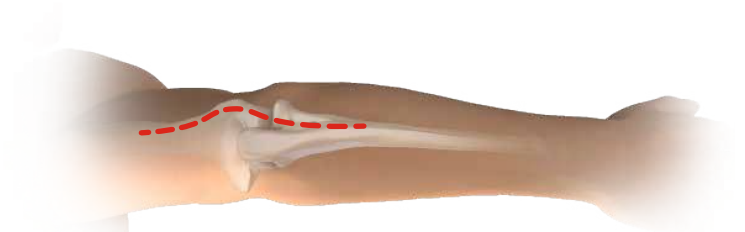


Supine



Prone

3.2. SURGICAL APPROACH



Posterior incision

Particular attention should be paid to the ulnar nerve - expose it.

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 **[43.4097.504]/[43.4098.504]** to determine the length of the implant.

Plate 3.4097.504 trial
Plate 3.4098.504 trial


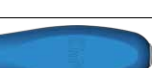




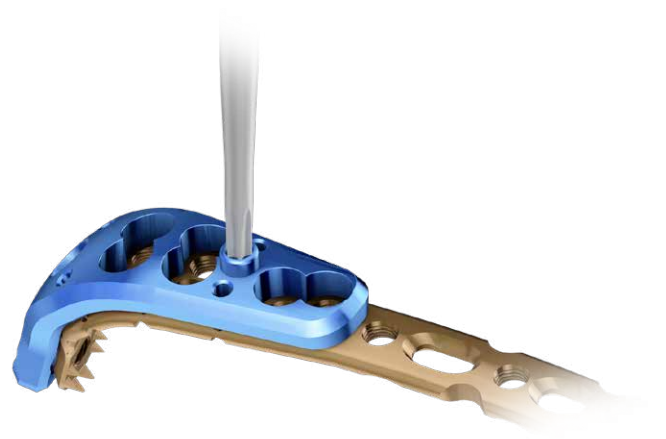
43.4097.504
43.4098.504



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 3.4097 |  | 40.5731.100 |
| plate 3.4098 |  | 40.5731.200 |
| |  | 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.



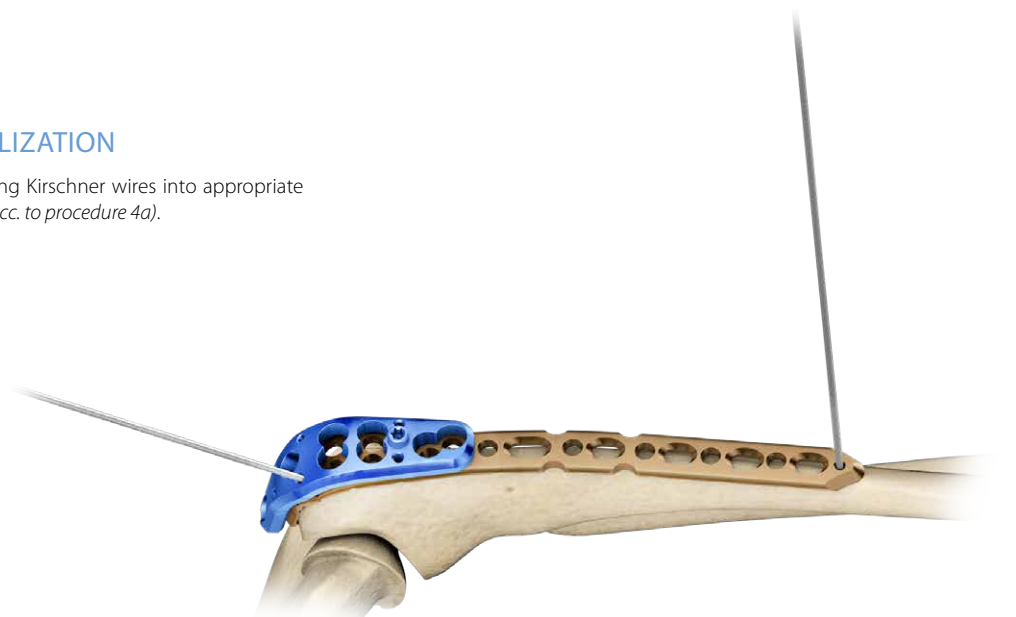
Not using aiming blocks may lead to improper device implantation. Incorrectly locked screws can cause complications when removing the plates.

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).



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.

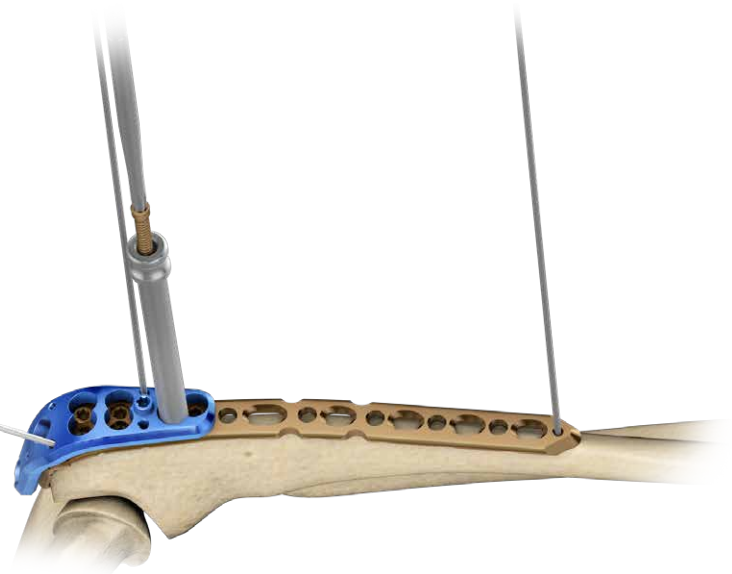
- 5.0ChLP self-tapping screw 3.5 **[3.5200]** (acc. to procedure 4c).
- 4.5ChLP screw 2.4 **[3.5225]** (acc. to procedure 4d).

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

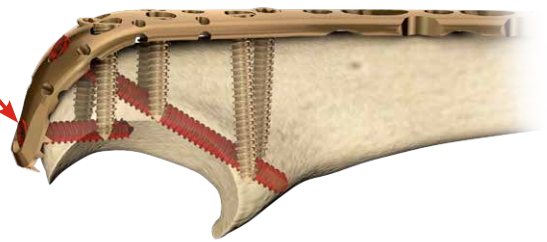


Insert the self-tapping screw 3.5 **[3.5200]** through that guide.

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



max18mm



The ulna stabilizing screws and the screws towards the coronoid process may interfere with each other. To avoid collisions, choose the screws of an adequate length.



NOTE: When inserting the screws in the epiphyseal part of the plate, assure they do not penetrate the joint surfaces.

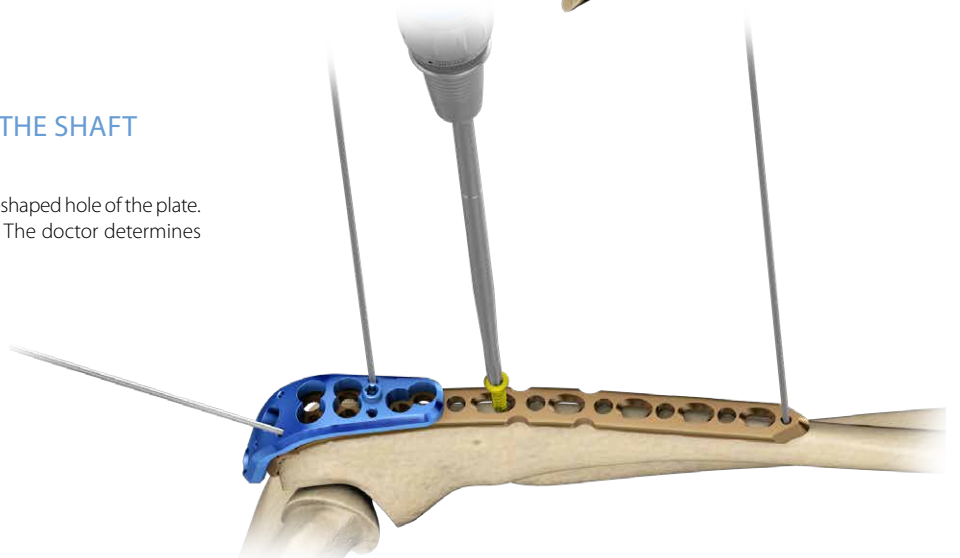
max16mm

max34mm



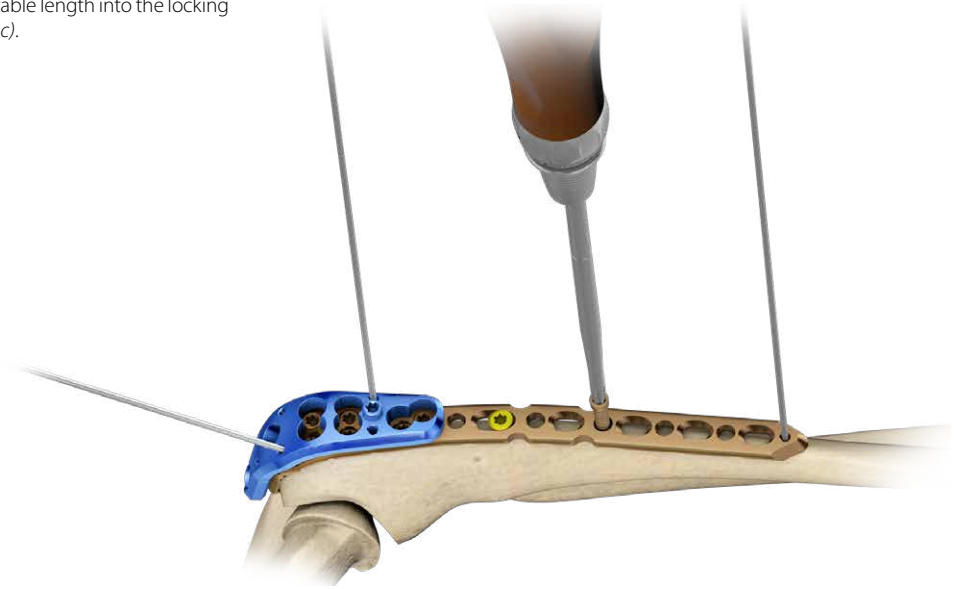
3.9. CORTICAL SCREWS INSERTION IN THE SHAFT PART OF THE PLATE

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.



3.10. 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 the fracture before inserting the locking screws.



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

3.11. AIMING BLOCK REMOVAL

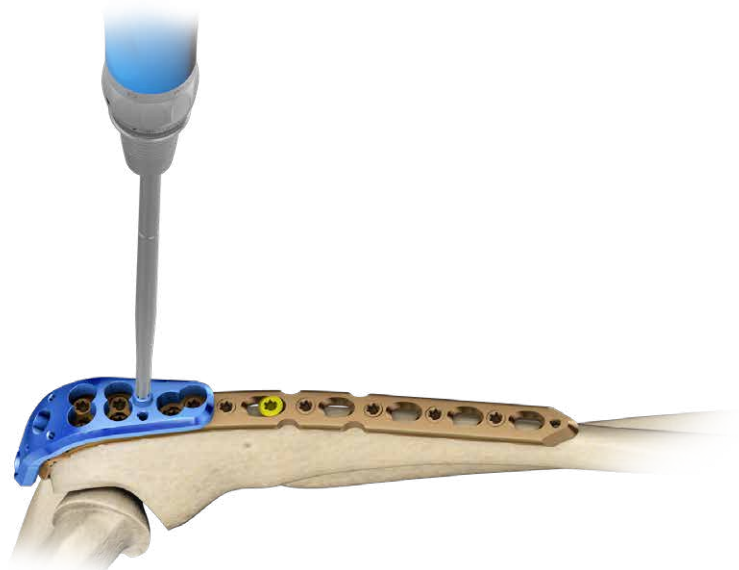
Use screwdriver tip T15 **[40.5677.000]** to remove the aiming block from the plate



40.6654.000



40.5677.000



3.12. 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.

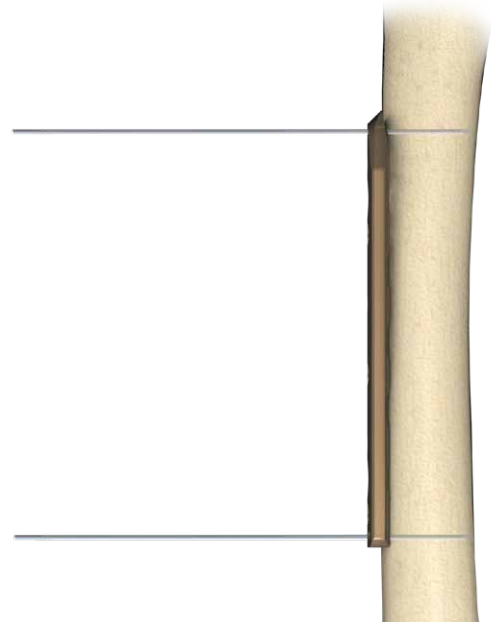
Use appropriate surgical technique to close the wound.

4. SURGICAL PROCEDURES

4a. PROCEDURE OF TEMPORARY IMPLANT STABILIZATION

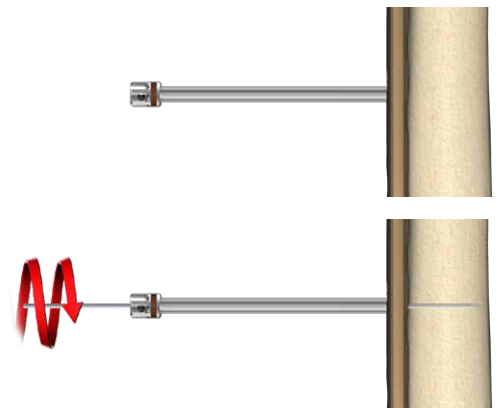
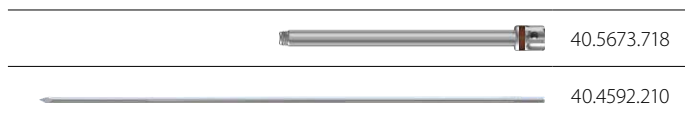
Stabilization using Kirschner wires

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



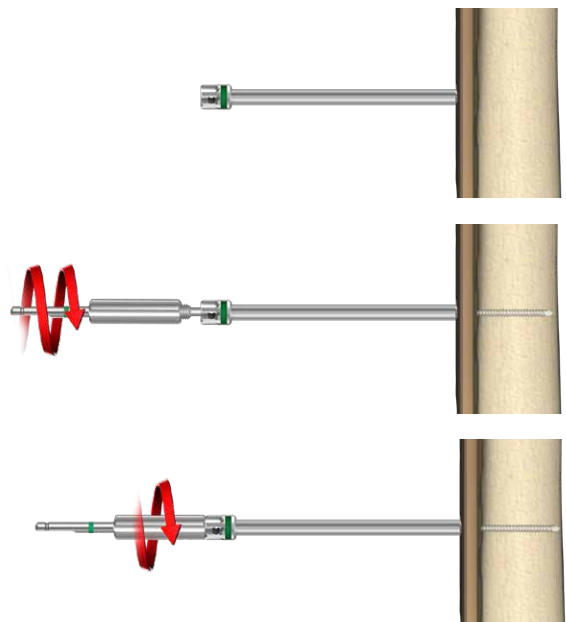
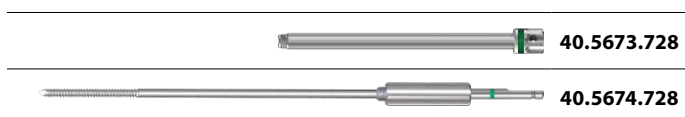
Stabilization in locking holes using Kirschner wires

- 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.



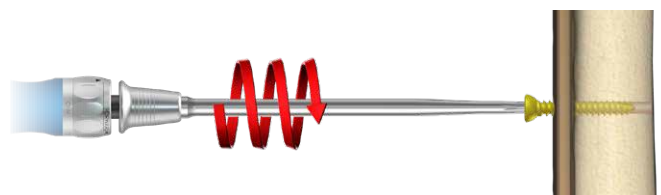
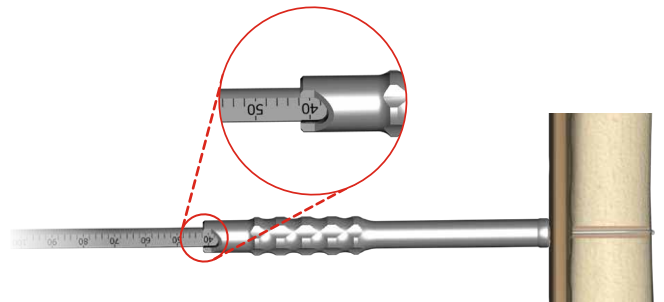
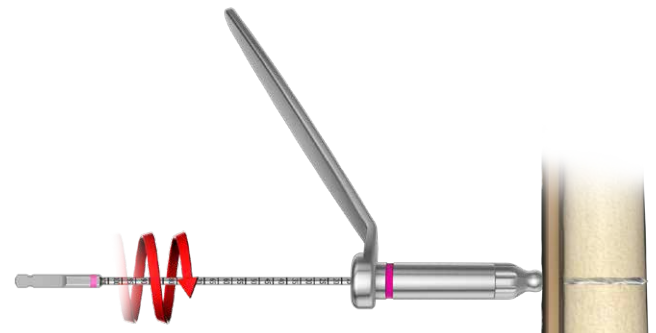
Measurement of hole depth

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.



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.

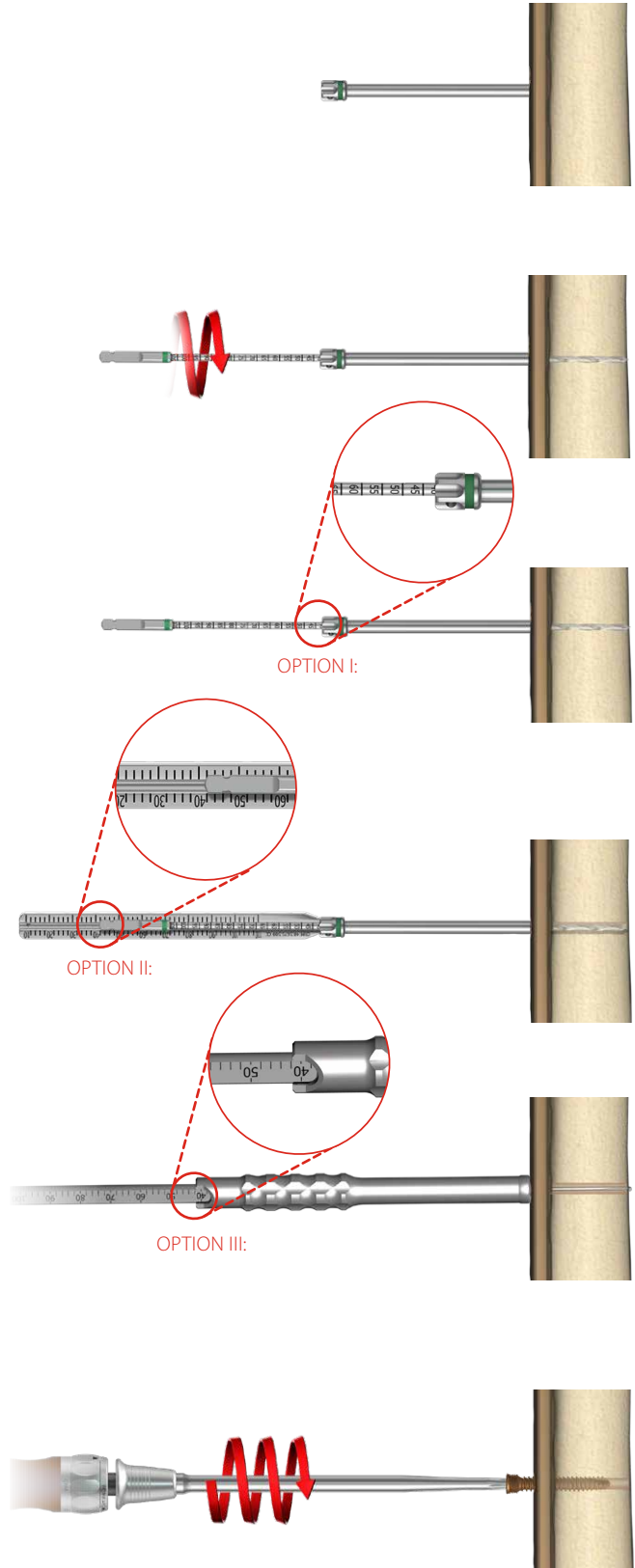


Screw insertion

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*).



4d. PROCEDURE OF 4.5ChLP SCREW 2.4 [3.5225] INSERTION

Guide sleeve insertion

- Insert guide sleeve 5.0/1.8 [40.5673.718] into a locking hole of the plate.



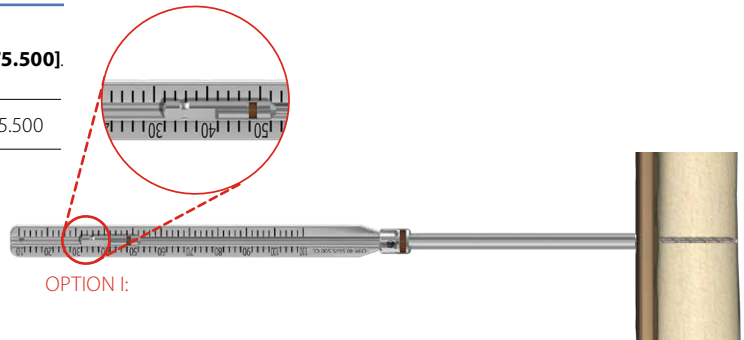
Hole drilling

Drill using drill with scale 1.8/210 [40.2063.222] until desired depth is reached.

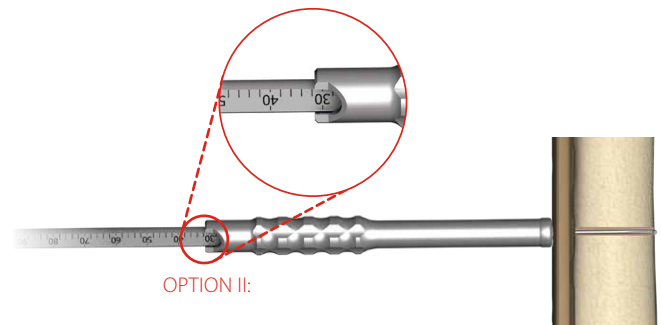


Measurement of hole depth

OPTION I: Read the length of the screw from screw length measure [40.5675.500].

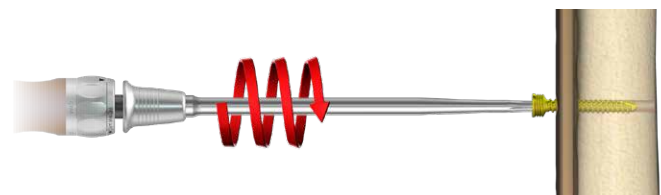


OPTION II: Having removed the guide sleeve 5.0/1.8 [40.5673.718], use depth measure [40.4639.550] to determine the length of a screw.



Screw insertion

Remove the guide sleeve 5.0/1.8 [40.5673.718]. Use torque limiting ratchet handle 2Nm [40.6652.000] and screwdriver tip T15 [40.5677.000] to insert the locking screw.



4e. 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].

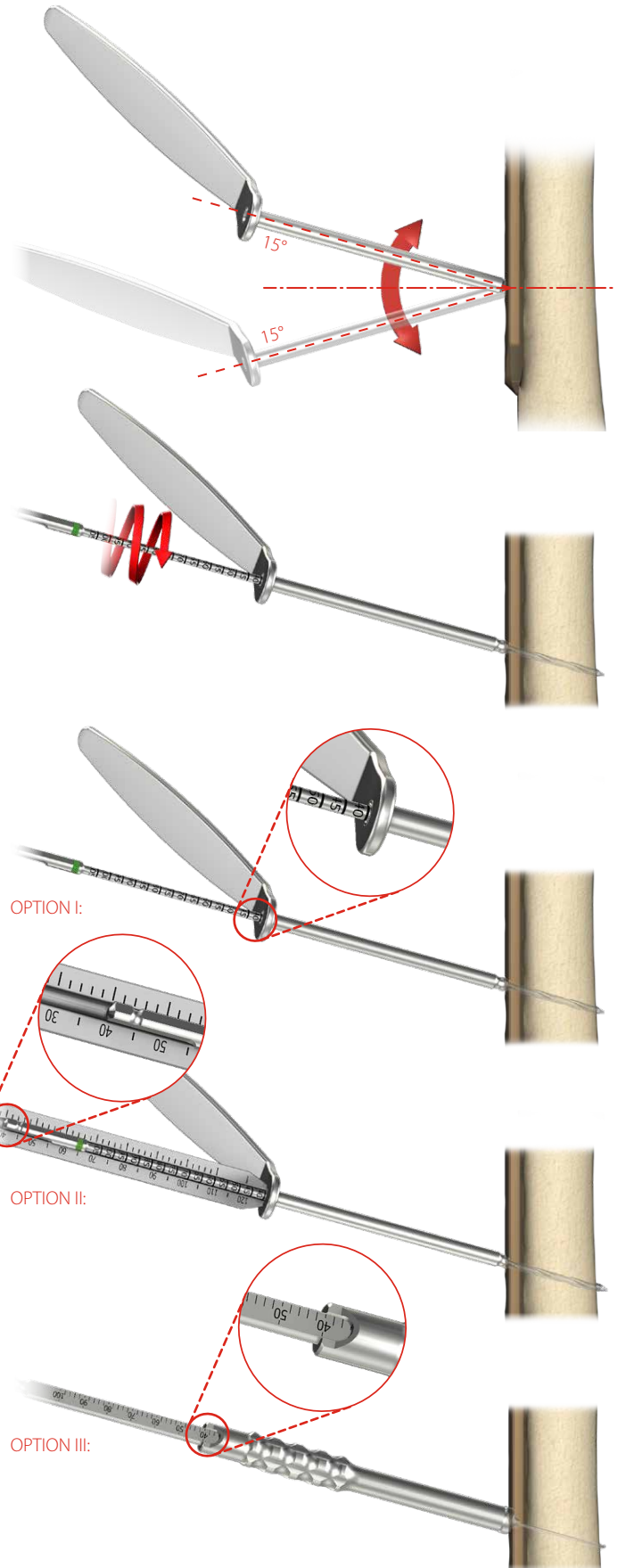


40.5675.500

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



40.4639.550



OPTION I:

OPTION II:

OPTION III:

Screw insertion

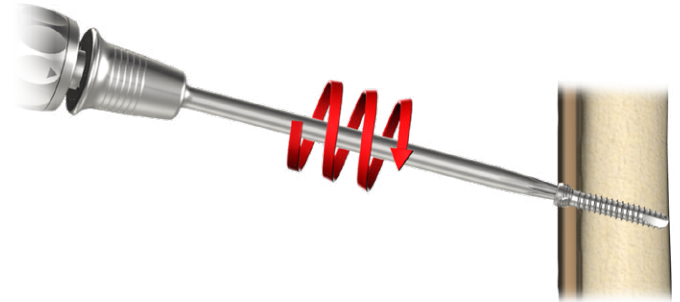
Use torque limiting ratchet handle 2Nm **[40.6652.000]** and screwdriver tip T15 **[40.5677.000]** to insert the VA screw.



40.6652.000



40.5677.000



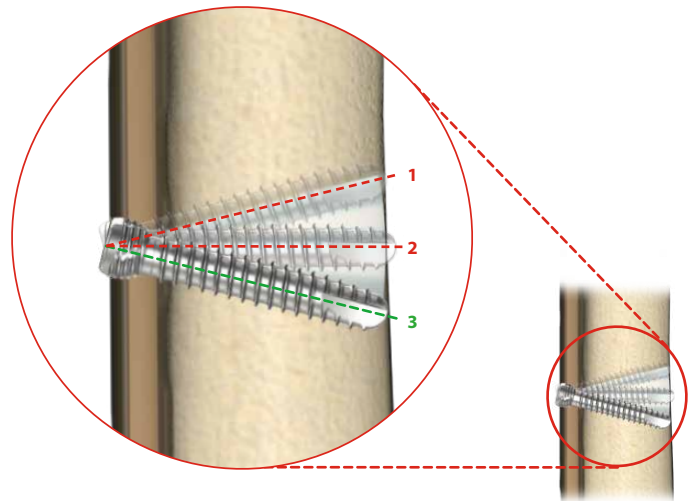
When using torque limiting handle to tighten the VA screw with large inclination in relation to the axis of the locking hole, the head of the screw may protrude above the plate. In this case, it may be necessary to use a handle ratchet device **[40.6654]** and screwdriver tip T15 **[40.5677]**. Use the 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.



40.6654.000



40.5677.000



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.









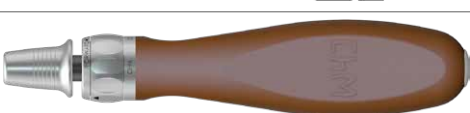
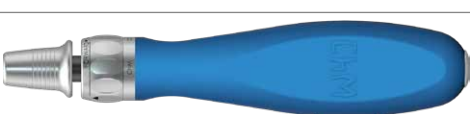






Having cleaned the outer surface of the plate and the screws sockets, it is recommended to attach the aiming block to the plate. Using aiming block and protective sleeve ensures positioning of the screwdriver tip in the axis of the screw, its full placement in the recess, and reduces the risk of twisting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







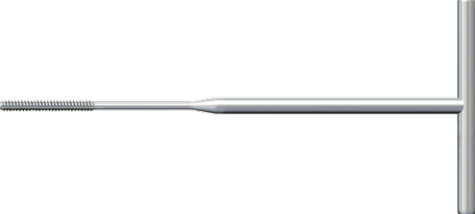

7. CATALOGUE PAGES

7a. INSTRUMENT SET

Instrument set for 5.0ChLP 4x4 1/2H

15.0205.206

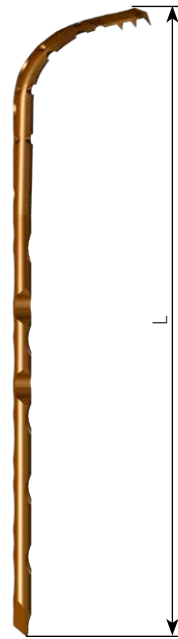
| | Name | Catalogue No. | Pcs |
|---|--|--------------------|-----|
|  | Tray for 5.0ChLP instrument set 4x4 1/2H | 14.0205.206 | 1 |
|  | Kirschner wire 1.5/210 | 40.4592.210 | 4 |
|  | Drill 1.8/210 | 40.2063.212 | 2 |
|  | Drill with scale 2.5/210 | 40.5912.212 | 2 |
|  | Drill with scale 2.8/210 | 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 |

| | 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 |

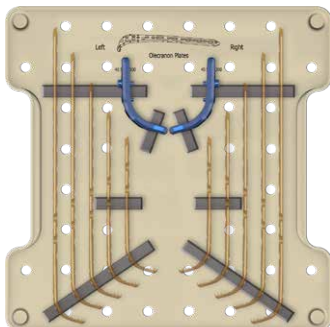


5.0ChLP olecranon plate

| 2 | 88 | 3.4097.502 | 3.4098.502 |
|----|-----|------------|------------|
| 4 | 121 | 3.4097.504 | 3.4098.504 |
| 6 | 151 | 3.4097.506 | 3.4098.506 |
| 8 | 181 | 3.4097.508 | 3.4098.508 |
| 10 | 210 | 3.4097.510 | 3.4098.510 |



- Ø3.5 3.5200.012÷095
- Ø2.4 3.5225.016÷040
- Cobalt
- Ø3.5 4.5236.012÷095
- Ø3.5 3.5200.012÷095
- Ø3.5 3.1306.010÷110



Tray for plates 5.0ChLP 3.4097/3.4098 4x4 1/2H 14.0205.409



Aiming block **[3.4097]** 40.5731.100



Aiming block **[3.4098]** Π 40.5731.200

Plate 3.4097.504 trial 43.4097.504

Plate 3.4098.504 trial 43.4098.504

7c. 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 |

5.0ChLP screw VA 3.5



| L | 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 |
| 90 | 4.5236.090 |
| 95 | 4.5236.095 |

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 |

4.5ChLP screw 2.4



| Len | Ti |
|-----|------------|
| 16 | 3.5225.016 |
| 18 | 3.5225.018 |
| 20 | 3.5225.020 |
| 22 | 3.5225.022 |
| 24 | 3.5225.024 |
| 26 | 3.5225.026 |
| 28 | 3.5225.028 |
| 30 | 3.5225.030 |
| 32 | 3.5225.032 |
| 34 | 3.5225.034 |
| 36 | 3.5225.036 |
| 38 | 3.5225.038 |
| 40 | 3.5225.040 |

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