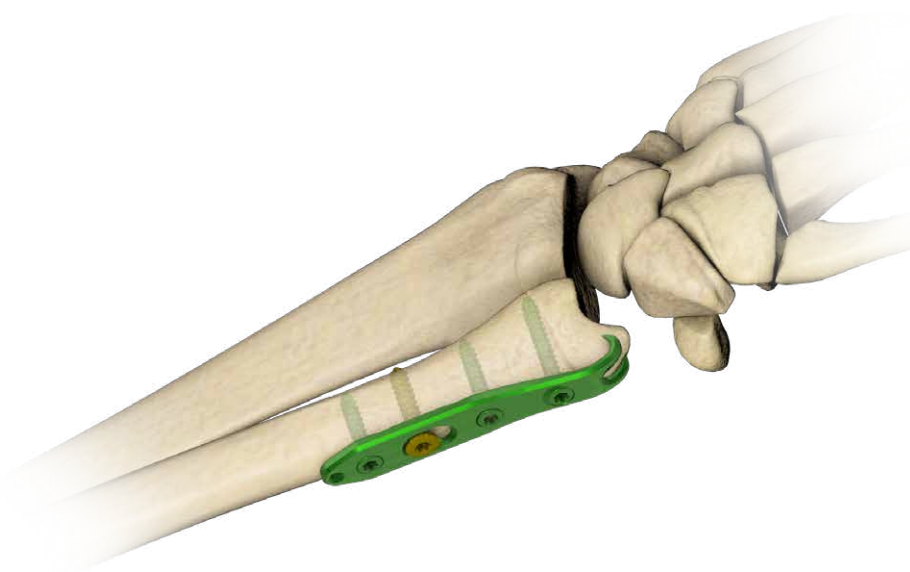


ChM[®]


































4.0^{ChM} Locked Plating
ChLP system

4.0ChLP distal ulnar plates
3.4099

- *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

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1. INTRODUCTION

This surgical technique applies to **4.0ChLP** locked plating system used for distal ulna bone 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. Compliance with the requirements of quality management systems and the requirements of Directive 93/42/EEC concerning medical devices guarantee high quality of the offered implants.

The system for the distal ulna bone treatment includes:

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

Indications

The plates are used to:

- treat articular/extra-articular fractures of distal ulna,
- perform osteotomy.

Contraindications

- infections,
- children in the growth phase.

Plate selection and shaping

The plates are available in various lengths and number of locking holes. This allows for optimal selection of the implant to the fracture type. Shaping of the plates in their epiphysial part is not allowed.



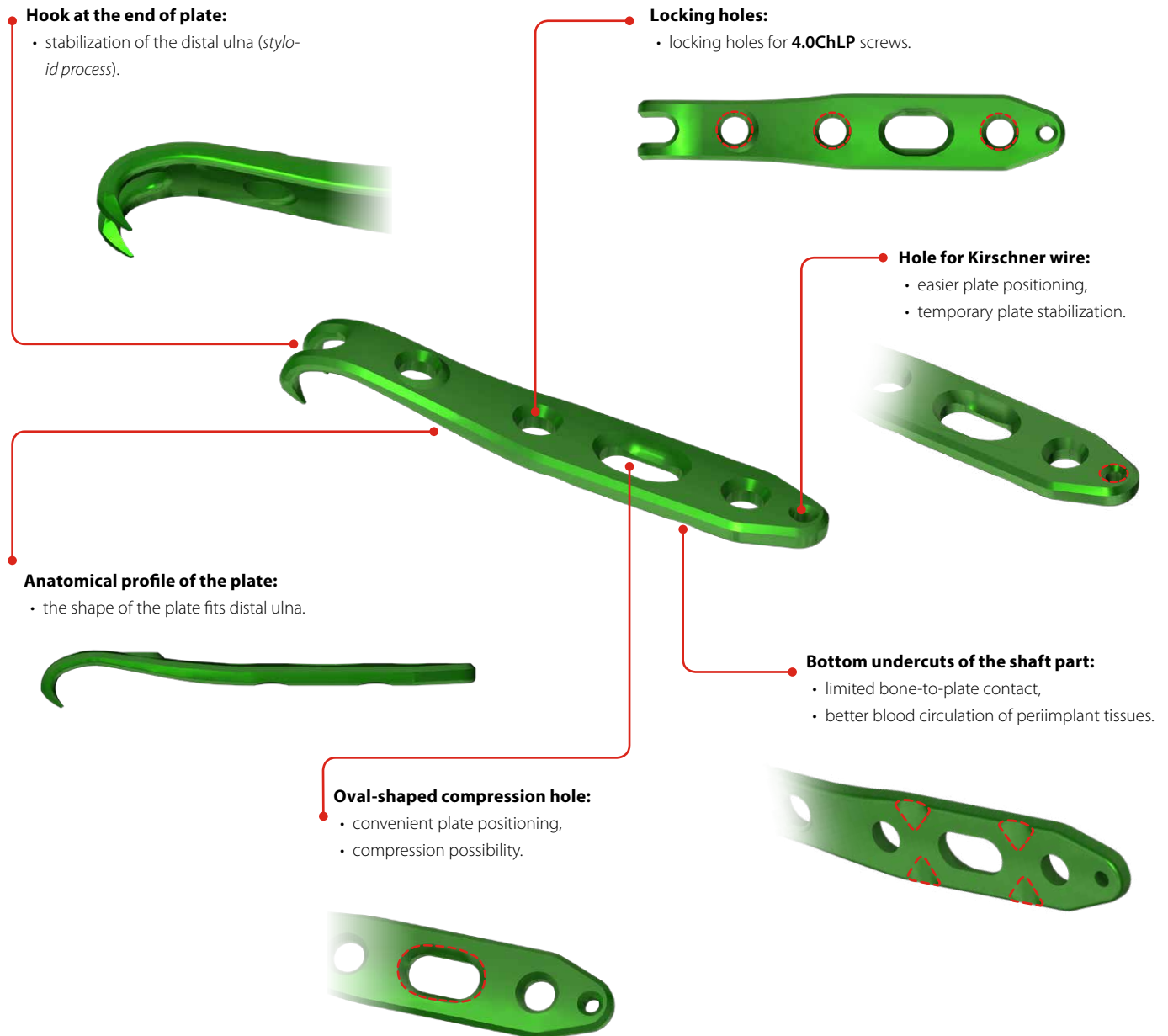
Before using the product, carefully read the Instructions for Use. It contains, among others, indications, contraindications, side effects, recommendations and warnings related to the use of the product.



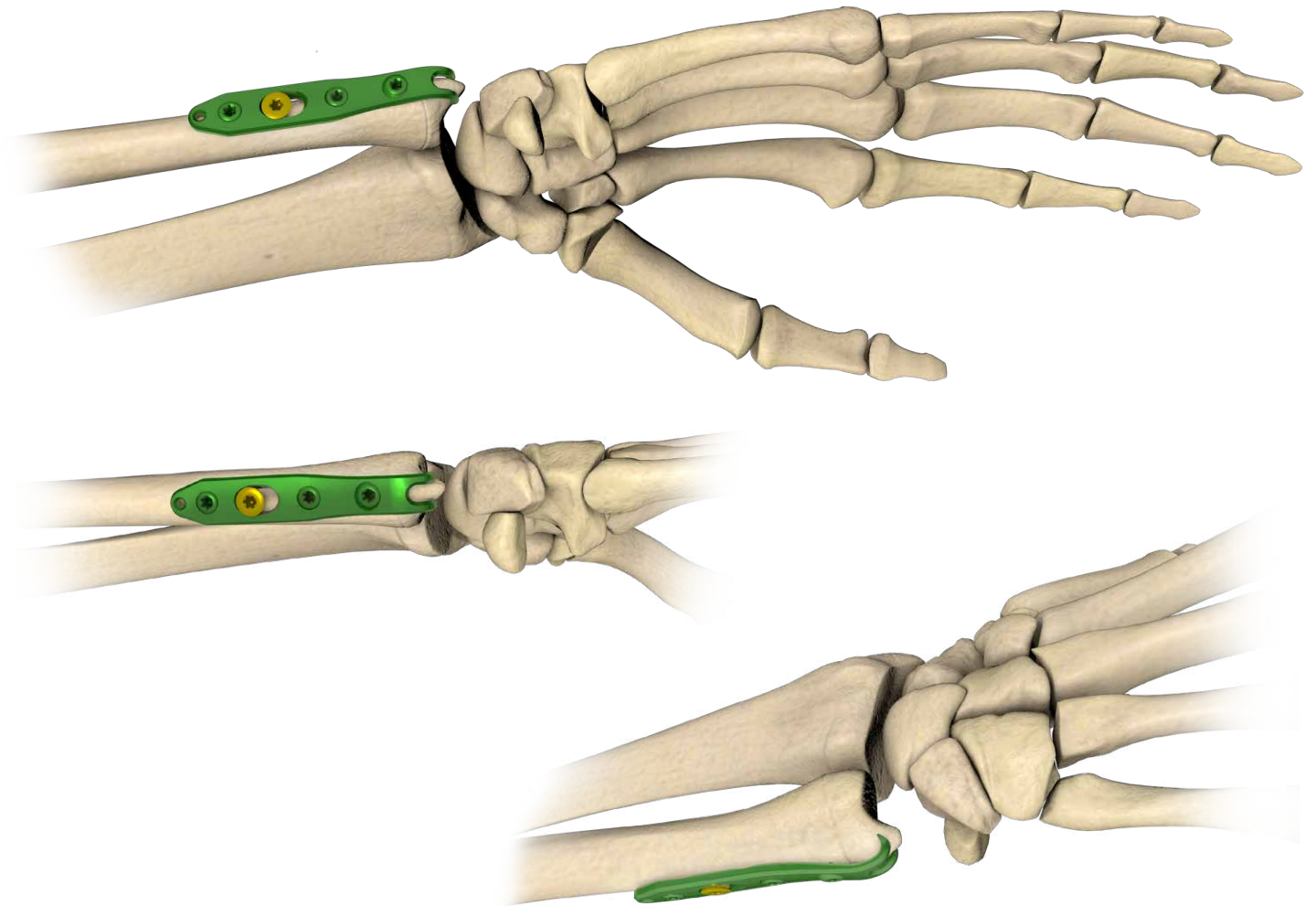
The above description is not a detailed instruction of conduct. The surgeon decides about choosing the operating procedure.

2. IMPLANT DESCRIPTION

Distal ulnar plates are a part of **4.0ChLP** system. This system includes also compatible locking screws. To facilitate their identification, both titanium plate and screws



4.0ChLP distal ulnar plate



are green anodized.

3. SURGICAL TECHNIQUE

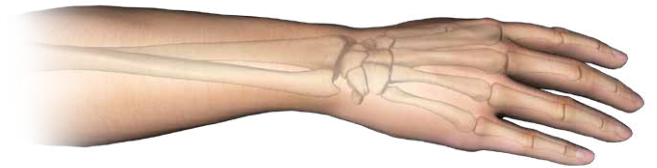
3.1. PATIENT'S POSITIONING

It is recommended to position the patient supine, with the hand in the pronation resting on the operating table.



3.2. SURGICAL APPROACH

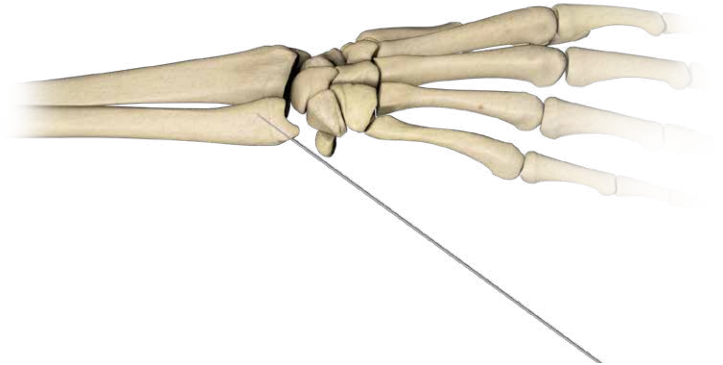
A posteromedial approach is recommended. Make a longitudinal skin incision between 4-6 cm in length.



Make sure the dorsal sensory branch of the ulnar nerve is not damaged.

3.3. FRACTURE REDUCTION

Reduce the fracture. If need be, temporarily stabilize the bone fragments with Kirschner wire.

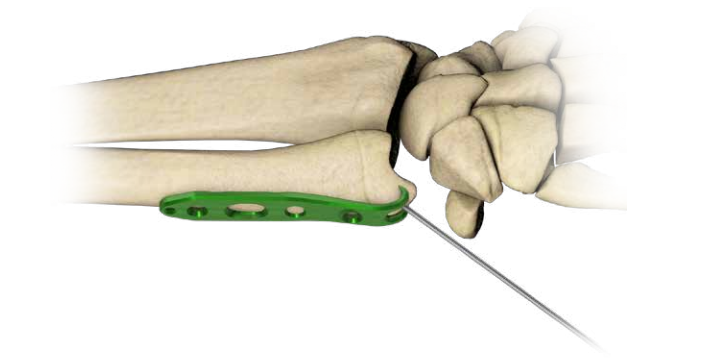
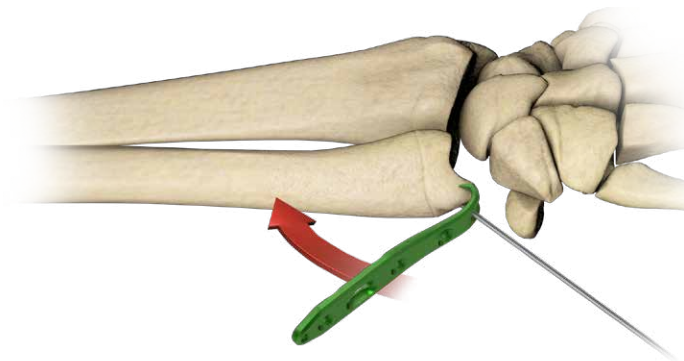


3.4. IMPLANT SELECTION

Choose the right size of the implant for the type of fracture, size and structure of the bone.

3.5. PLATE INSERTION

Position the implant correctly on the bone and hook it on the styloid process of the ulna.

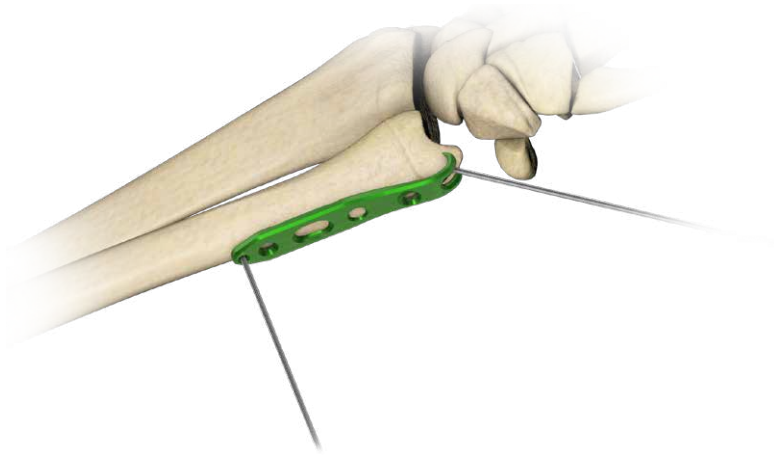


3.6. TEMPORARY PLATE STABILIZATION

The position of the implant may be stabilized by inserting Kirschner wire into appropriate hole or using setting-compressing screw (*acc. to procedure 4a*).



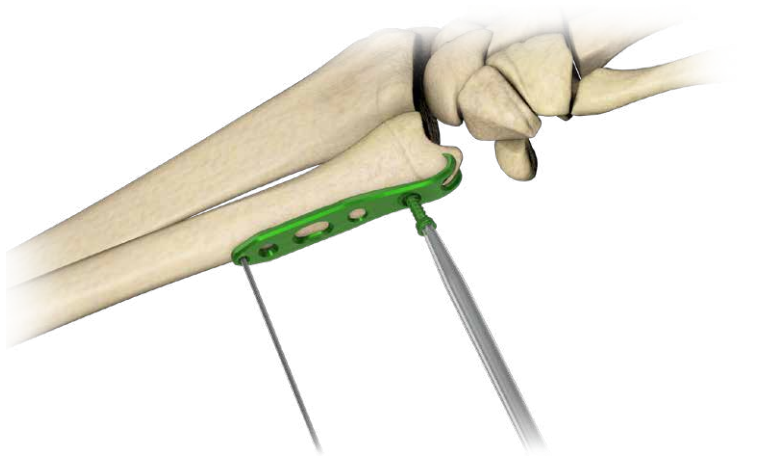
NOTE: Confirm the correct position of the implant by taking X-Ray image.



3.7. INSERTION OF LOCKING SCREW IN THE EPIPHYSIAL PART OF THE PLATE

Insert a locking screw of a proper length in the locking hole of the epiphysial part of the plate.

- Insert **4.0ChLP** screw 2.4 [3.5164] *acc. to 4c procedure*,
- Insert **4.0ChLP** screw VA 2.4 [4.5235] *acc. to 4d procedure*.



3.8. CORTICAL SCREW INSERTION

Insert cortical self-tapping screw 2.7 [3.1220] into the oval-shaped hole of the plate (*acc. to procedure 4b*).

Remove Kirschner wire.



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

Insert **4.0ChLP** screw 2.4 [3.5164] of a proper length in the locking hole of the shaft part of the plate.



3.10. 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.

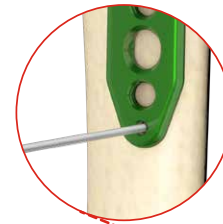
Use appropriate surgical technique to close the wound.

4. SURGICAL PROCEDURES

4a. PROCEDURE OF TEMPORARY IMPLANT STABILIZATION

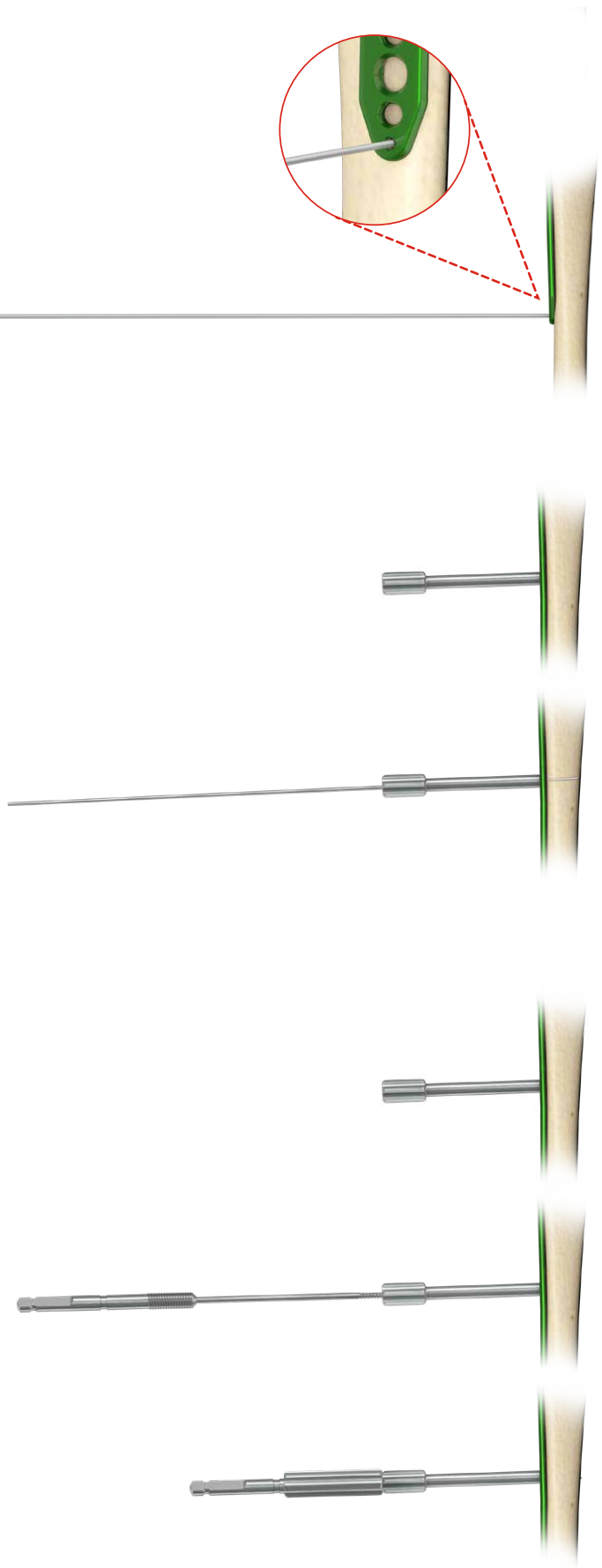
Stabilization using Kirschner wire

- Stabilize temporary the implant inserting Kirschner wire 1.0/180 **[40.4814.000]** into dedicated hole in the plate.



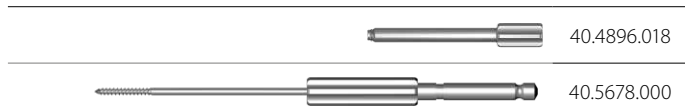
Stabilization in locking holes using Kirschner wires

- Insert threaded guide M3.5/1.8-4.0 **[40.4896.018]** into locking hole of the plate.
- Insert Kirschner wire 1.0/180 **[40.4814.000]** through the threaded guide M3.5/1.8-4.0 **[40.4896.018]**.



Stabilization using setting-compressing screw

- Insert threaded guide M3.5/1.8-4.0 **[40.4896.018]** into the locking hole of the plate.
- Insert setting-compressing screw 1.8/120 **[40.5678.000]** through the threaded guide **[40.4896.018]**.
- Tighten the nut of the setting-compressing screw **[40.5678.000]** and push the plate to the bone.



4b. PROCEDURE OF CORTICAL SELF-TAPPING SCREW 2.7 [3.1220] INSERTION

Compression guide positioning

Position the compression guide 1.8 [40.4897.018] in a desired position:



NEUTRAL POSITION: Push the guide to the plate. It will position itself so that 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.

Hole drilling

Perform a hole through both cortices for a cortical screw 2.7 insertion. For drilling, use drill 1.8/180 [40.2063.181] and compression guide in a desired position.



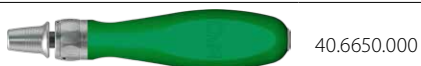
Measurement of hole depth

Insert depth measure [40.4640.000] into drilled hole until the hook of the measure rests against the outer surface of the second cortex.



Screw insertion

Insert cortical screw using torque limiting ratchet handle 1Nm [40.6650.000] and screwdriver tip T8 [40.5682.000].

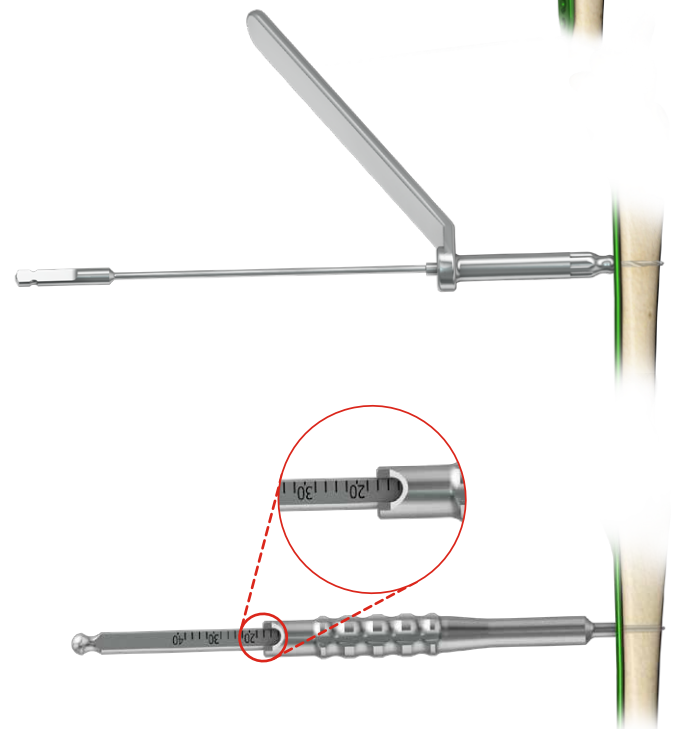


NEUTRAL POSITION:



COMPRESSION POSITION:

ANGULAR POSITION:



4c. PROCEDURE OF 4.0ChLP SCREW 2.4 [3.5164] INSERTION

Threaded guide insertion

Insert threaded guide M3.5/1.8-4.0 **[40.4896.018]** into the threaded hole of the plate.



40.4896.018

Hole drilling

Drill using drill 1.8/180 **[40.2063.181]** until a desired depth is reached.



40.2063.181

Measurement of hole depth

OPTION I: Determine the length of the screw to be used using locking screw length measure **[40.4818.100]**.



40.4818.100

OPTION II: or having removed the threaded guide M3.5/1.8-4.0 **[40.4896.018]**, use depth measure **[40.4640.000]** to determine the length of the screw.



40.4640.000

Screw insertion

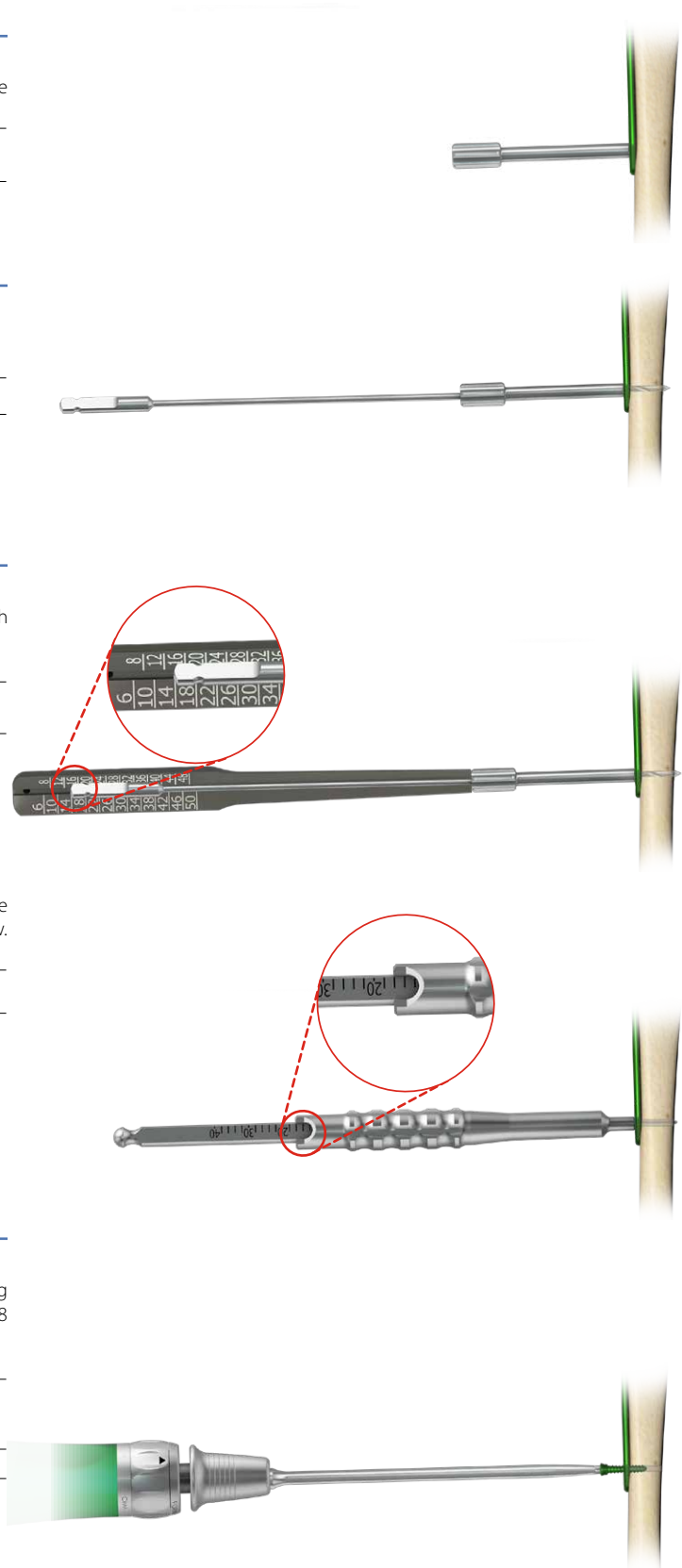
Remove threaded guide M3.5/1.8-4.0 **[40.4896.018]**. Insert locking screw using torque limiting ratchet handle 1Nm **[40.6650.000]** and screwdriver tip T8 **[40.5682.000]**.



40.6650.000



40.5682.000



4d. PROCEDURE OF 4.0ChLP SCREW VA 2.4 [4.5235] INSERTION

Guide VA positioning

- Insert the guide VA 1.8 [40.5928.018] 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.



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



40.5928.018

Hole drilling

- Drill using drill 1.8/180 [40.2063.181] until desired depth is reached.



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



40.2063.181

Measurement of hole depth

OPTION I: Determine the length of the screw to be used using locking screw length measure [40.4818.100].



40.4818.100

OPTION II: or having removed the guide VA, use depth measure [40.4640.000] to determine the length of the screw.



40.4640.000

Screw insertion

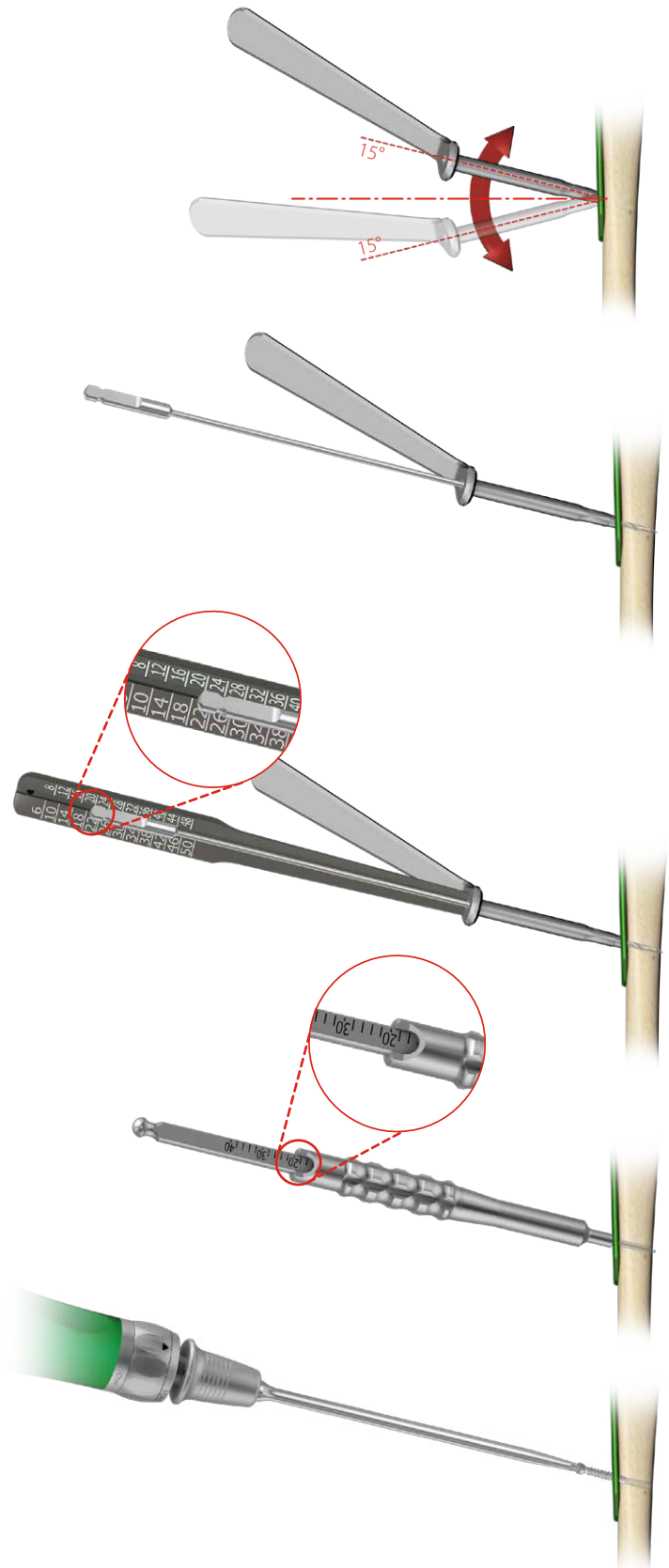
Insert VA screw using torque limiting ratchet handle 1Nm [40.6650.000] and screwdriver tip T8 [40.5682.000].



40.6650.000



40.5682.000



5. POSTOPERATIVE PROCEDURE

Introduce appropriate postoperative treatment that is determined by the physician. 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

7. CATALOGUE PAGES

7a. INSTRUMENT SET

Instrument set for 4.0ChLP



40.5711.200

	Name	Catalogue No.	Pcs
	Threaded guide M3.5/1.8 -4.0	40.4896.018	4
	Compression guide 1.8	40.4897.018	1
	Guide VA 1.8	40.5928.018	1
	Kirschner wire 1.0/180	40.4814.000	5
	Drill 1.8/180	40.2063.181	2
	Length measure of locking screw	40.4818.100	1
	Depth measure	40.4640.000	1
	Screwdriver tip T8.0	40.5682.000	1
	T8 screwdriver tip with holder	40.5989.000	1
	Cortical tap HA 2.7	40.5988.000	1
	Tap 4.0ChLP -2.4	40.5987.024	1
	Setting-compressing screw 1.8/120	40.5678.000	2
	Torque limiting ratchet handle 1.0Nm	40.6650.000	1
	Star screwdriver T8	40.0669.100	1
	Plates bender 4.0	40.4643.000	2
	Dissecting forceps Standard 14.5cm	30.3303.000	1
	Palette for instruments 4.0ChLP	40.5712.100	1

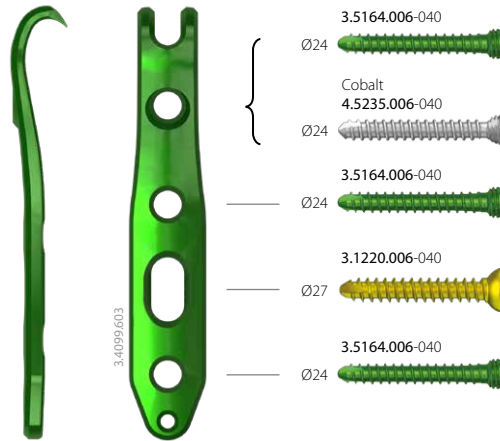
7b. IMPLANTS

4.0ChLP distal ulnar plate

Ti Ster/Non Ster

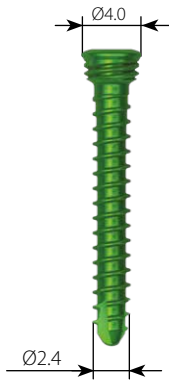
 *	Len	
3	45	3.4099.603
4	53	3.4099.604
5	61	3.4099.605

* holes number in shaft part of the plate



7c. SCREWS

4.0ChLP screw 2.4



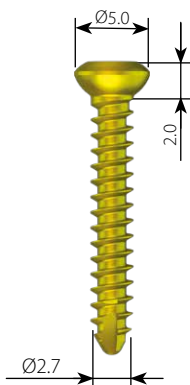
Len	Ti
6	3.5164.006
8	3.5164.008
10	3.5164.010
12	3.5164.012
14	3.5164.014
16	3.5164.016
18	3.5164.018
20	3.5164.020
22	3.5164.022
24	3.5164.024
26	3.5164.026
28	3.5164.028
30	3.5164.030
32	3.5164.032
34	3.5164.034
36	3.5164.036
38	3.5164.038
40	3.5164.040

4.0ChLP screw VA 2.4



Len	Co
6	4.5235.006
8	4.5235.008
10	4.5235.010
12	4.5235.012
14	4.5235.014
16	4.5235.016
18	4.5235.018
20	4.5235.020
22	4.5235.022
24	4.5235.024
26	4.5235.026
28	4.5235.028
30	4.5235.030
32	4.5235.032
34	4.5235.034
36	4.5235.036
38	4.5235.038
40	4.5235.040

Cortical self-tapping screw 2.7



Len	Ti
6	3.1220.006
8	3.1220.008
10	3.1220.010
12	3.1220.012
14	3.1220.014
16	3.1220.016
18	3.1220.018
20	3.1220.020
22	3.1220.022
24	3.1220.024
26	3.1220.026
28	3.1220.028
30	3.1220.030
32	3.1220.032
34	3.1220.034
36	3.1220.036
38	3.1220.038
40	3.1220.040

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