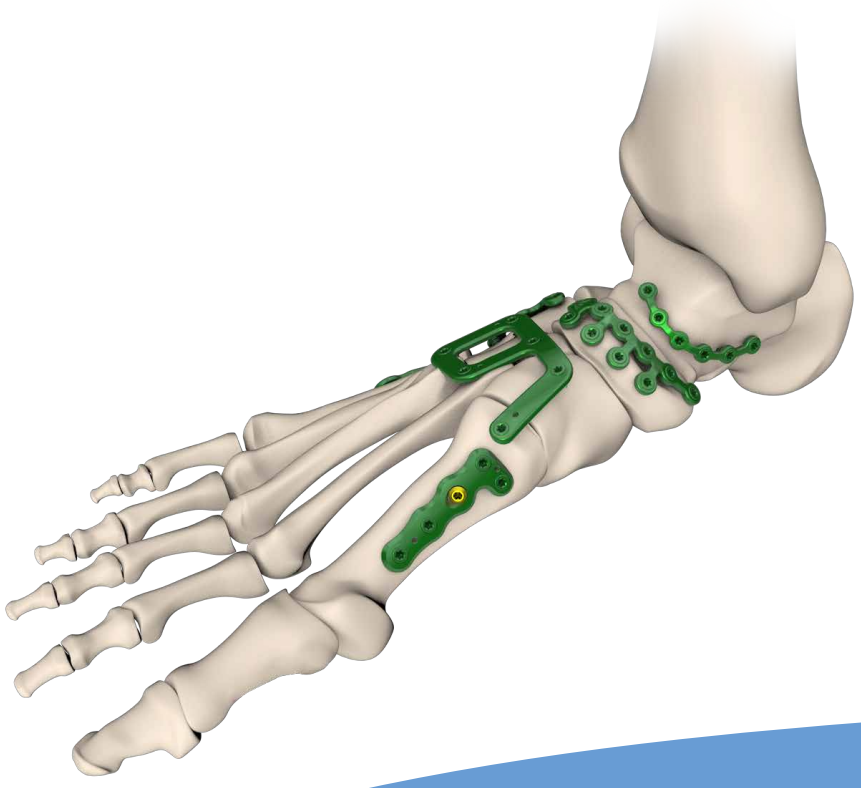
ST/80-405

ChM®

4,0 ChM Locked Plating ChLPsystem

4.0ChLP plates for foot
40.5710.020

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



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SYMBOLS DESCRIPTION

Ti	Titanium or titanium alloy	H	H length [mm]
Co	Cobalt		Angle
L	Left	88 340	available lengths
R	Right	4-22	Available number of holes
L R	Available versions: left/right	1.8	Thickness [mm]
Len	Length	1:1	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	VA	Variable angle
	Hexagonal drive cannulated		Cortical
	Cannulated		Cancellous
	Locking	Ster Non Ster	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

This surgical technique applies to 4.0ChLP locked plating system used for foot fractures stabilization. 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

- foot bones fractures,
- mal-unions and non-unions,
- bone fractures, degeneration or arthritis qualifying for arthrodesis.

Plate selection and shaping

The plates are available in different types, lengths and for left and right extremity, separately. This allows for optimal selection of the implant to the fracture type.

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

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

Design aligned with anatomy
- optimized anatomical profile
- fit to a wide range of anatomies
- facilitated anatomical reduction

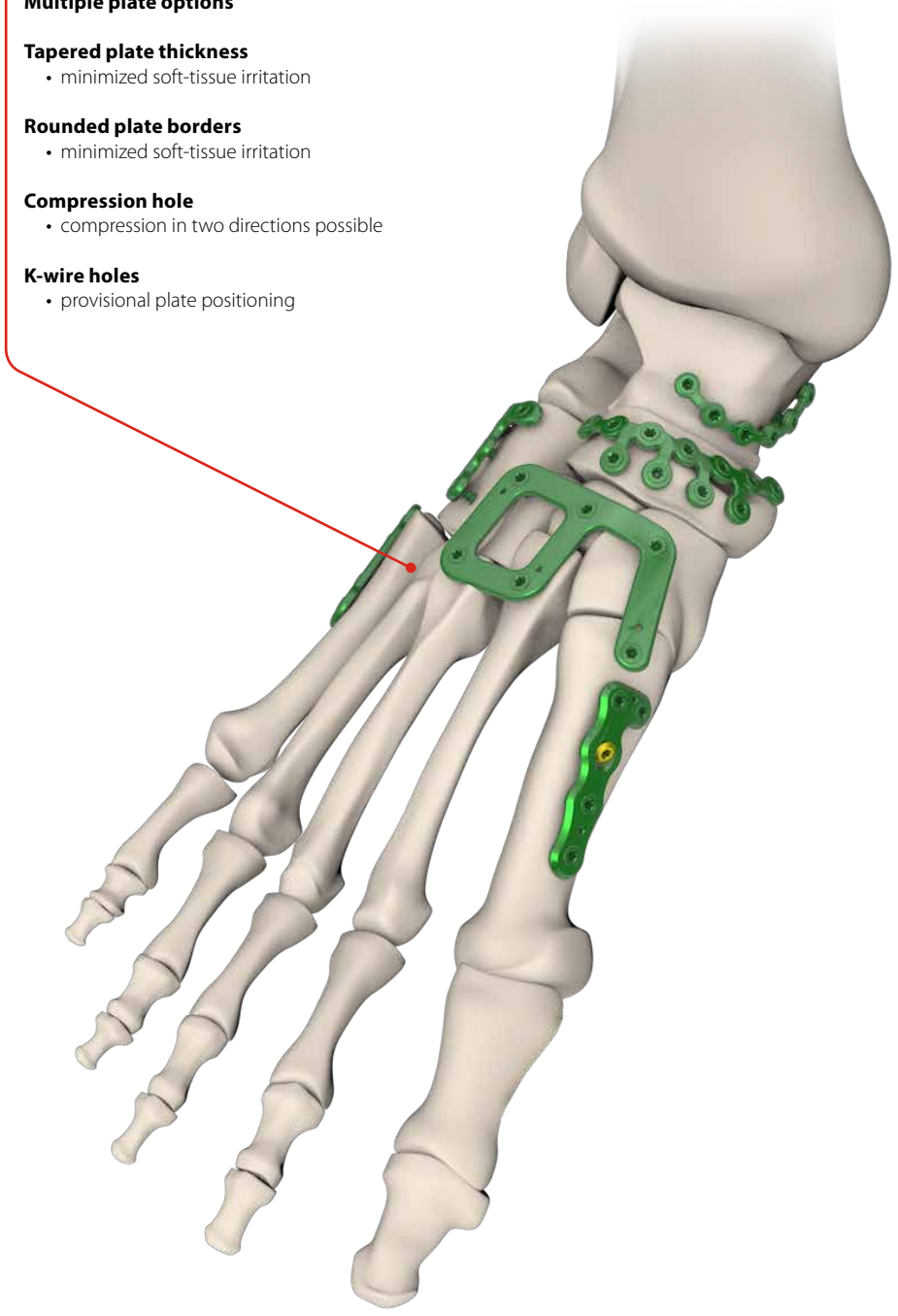
Multiple plate options

Tapered plate thickness
- minimized soft-tissue irritation

Rounded plate borders
- minimized soft-tissue irritation

Compression hole
- compression in two directions possible

K-wire holes
- provisional plate positioning



3. SURGICAL TECHNIQUE

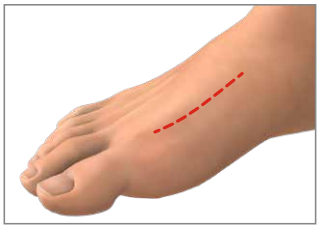
3.1. PATIENT'S POSITIONING

Patient's position depends on the selected treatment method and the surgical approach selected by an operator. The foot position should enable the X-Ray image to be taken in the lateral and A-P view.

3.2. SURGICAL APPROACH

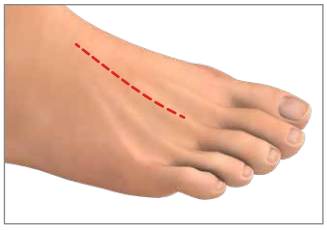
Surgical approach depends on individual cases and is related to the treatment method chosen.
The most commonly used surgical accesses:

Medial approach to the tarsal bone



Approach to the first metatarsal

Lateral approach to the fifth metatarsal



Dorsal approach to metatarsal bones

3.3. FRACTURE REDUCTION

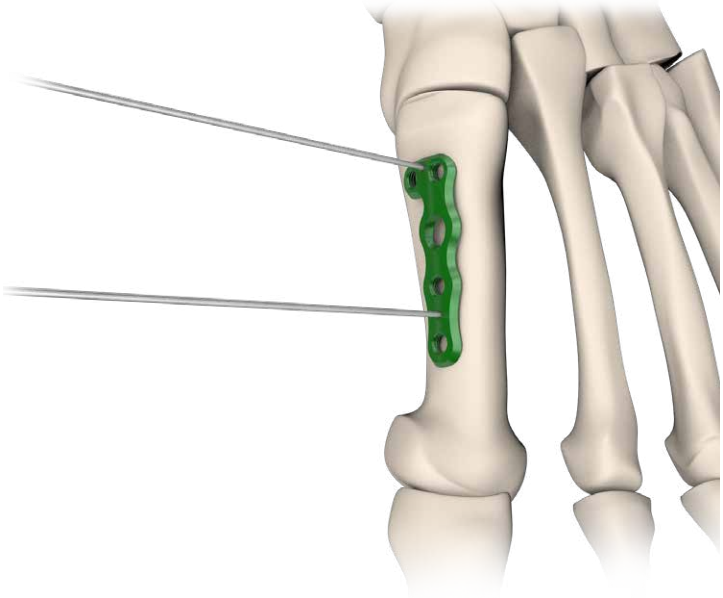
Perform fracture reduction. If need be, temporarily stabilize the bone fragments with Kirschner wires and/or reduction pliers.

3.4. IMPLANT SELECTION

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

3.5. PLATE INSERTION

Position the implant correctly on the bone.



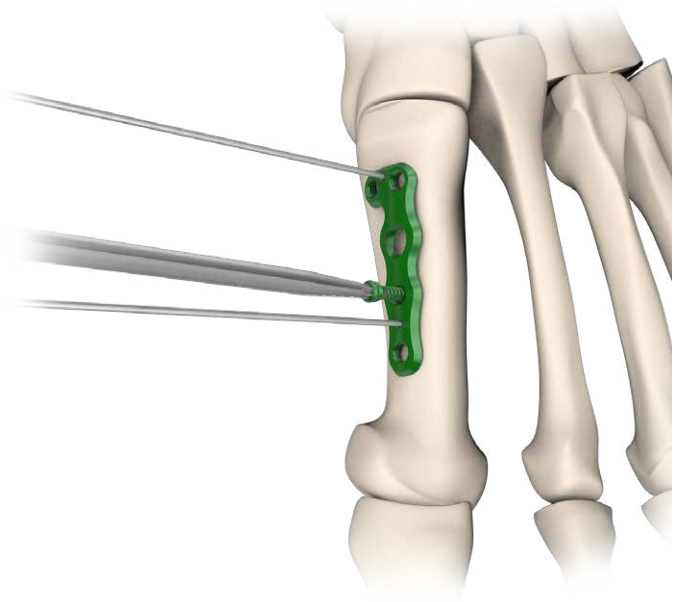
3.6. TEMPORARY PLATE STABILIZATION

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

3.7. LOCKING SCREWS INSERTION

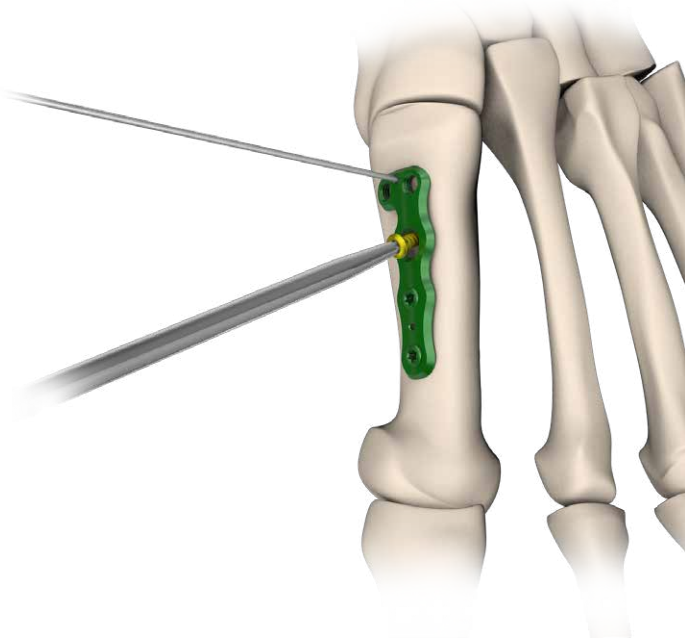
Insert locking screw of a suitable length into locking holes of the plate.

- 4.0ChLP self-taping screw 2.4 **[3.5164]**/ 2.7 **[3.5165]** acc. to procedure 4c



3.8. CORTICAL SCREW INSERTION

Insert cortical self-tapping screw 2.7 **[3.1220]** into the oval-shaped hole of the plate. If necessary, perform compression *(acc. to procedure 4b)*. The doctor decides about the order and number of screws to be inserted.



Insert the cortical screws 2.7 into the fracture before inserting the locking screws.

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

3.9. 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.

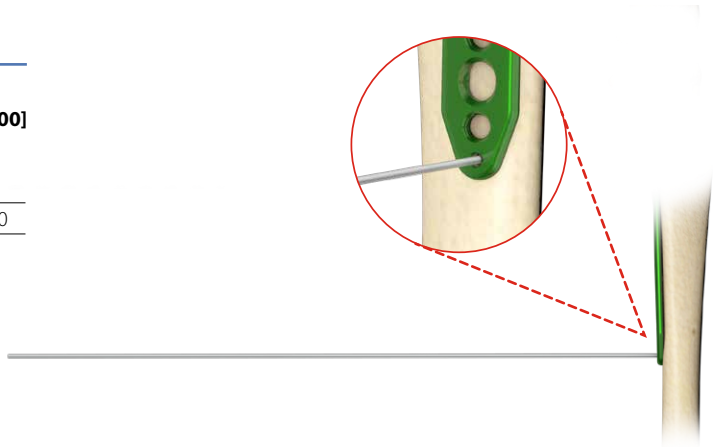
4. SURGICAL PROCEDURES

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.

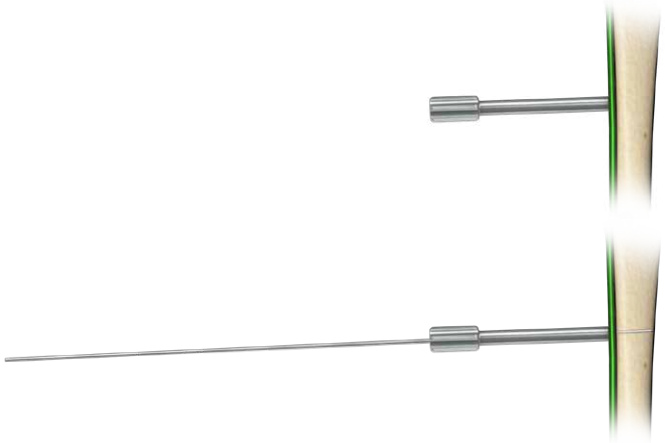
	40.4814.000



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]**.

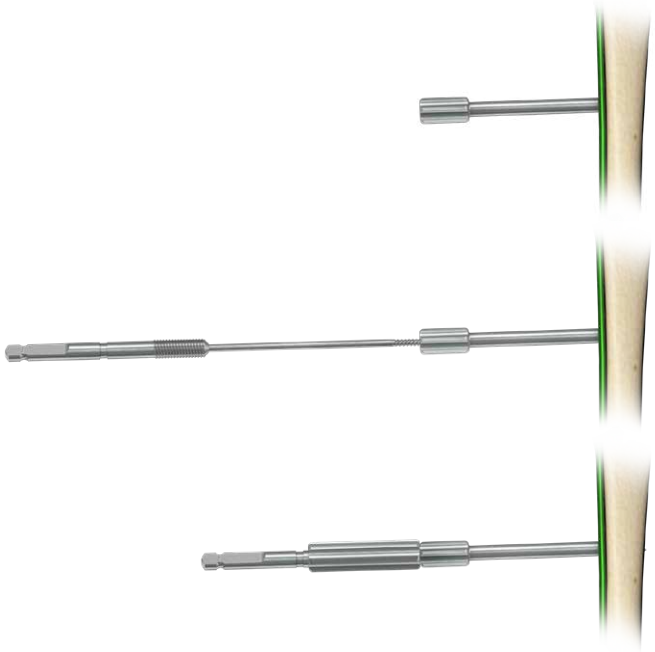
	40.4896.018
	40.4814.000



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.

	40.4896.018
	40.5678.000



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

Compression guide positioning

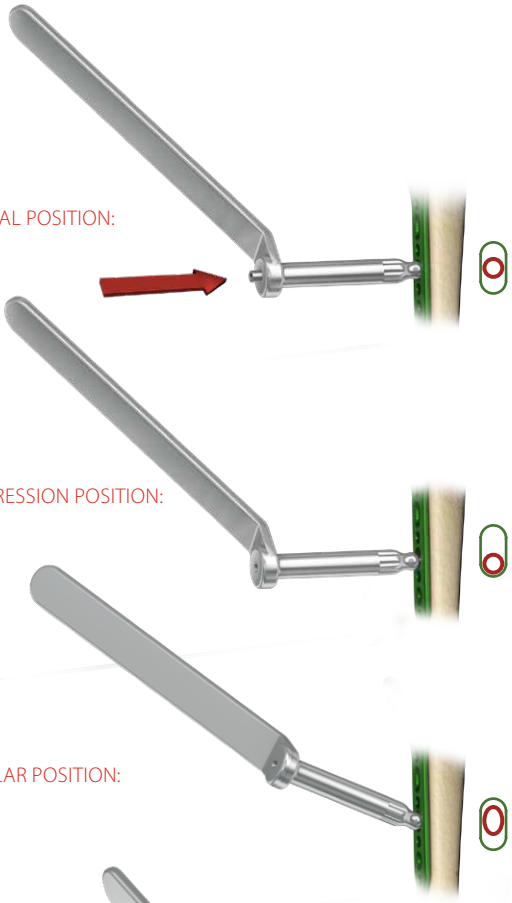
Position the compression guide 1.8 **[40.4897.018]** in a desired position:

40.4897.018

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

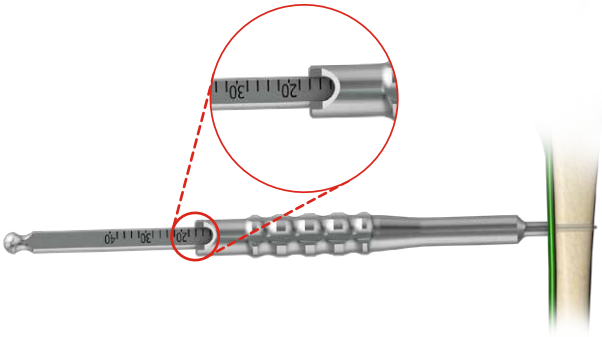
Perform a hole through both cortices for a cortical screw 2.7 insertion. For drilling, use drill 1.8/180 **[40.2063.181]** and compression guide in a desired position.

40.2063.181

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.

40.4640.000



Screw insertion

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

40.6650.000

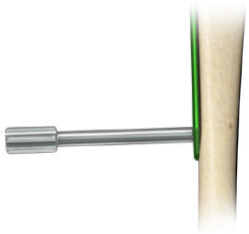
40.5682.000

4c. PROCEDURE OF 4.0ChLP SCREW 2.4 [3.5164] / 2.7 [3.5165] 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

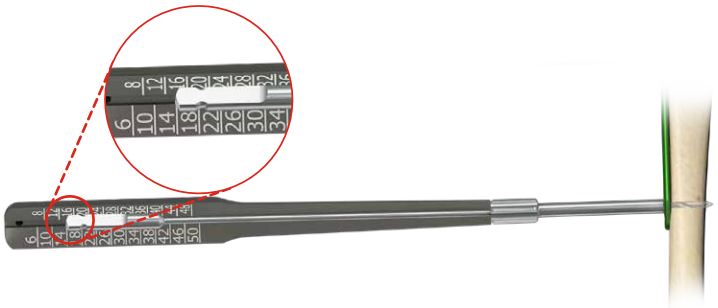
Drill using drill 1.8/180 **[40.2063.181]** until a desired depth is reached.

40.2063.181

Measurement of hole depth

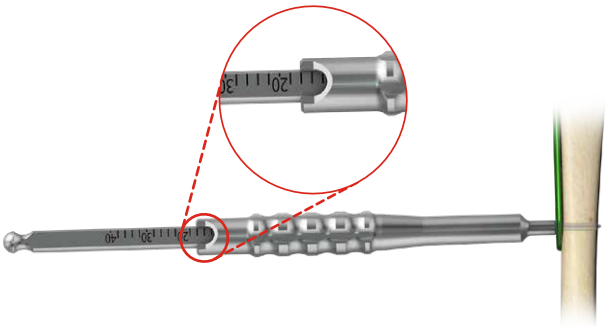
OPTION I: Determine the length of the screw to be used using locking screw length measure **[40.4818.100]**.

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

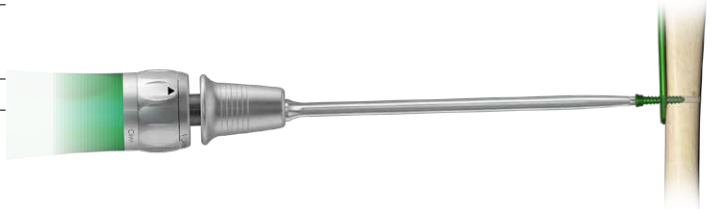


Screw insertion

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]**.

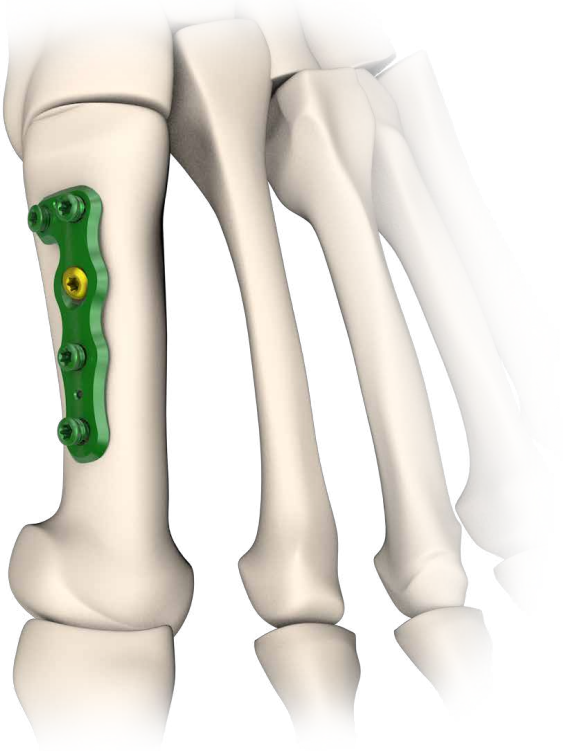
40.6650.000

40.5682.000



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.

40.0669.100

7. CATALOGUE PAGES

7a. INSTRUMENT SET

40.5710.020

Set for 4.0ChLP - foot	Name	Pcs	Catalogue no.
	Инструменты 4,0ChLP	1	40.5711.000
	Palette for 4.0ChLP implants - foot	1	40.5714.020
	Container with solid bottom 1/2 306x272x85mm	1	12.0751.100
	Perforated aluminum lid 1/1 595x275x15mm Gray	1	12.0751.200

40.5711.000

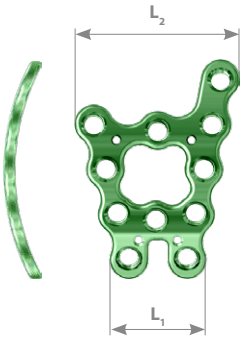
	Name	Pcs	Catalogue no.
	Threaded guide M3.5/1.8 -4,0	4	40.4896.018
	Compression guide 1.8	1	40.4897.018
	Kirschner wire 1.0/180	5	40.4814.000
	Drill 1.8/180	2	40.2063.181
	Length measure of locking screw	1	40.4818.000
	Depth measure	1	40.4640.000
	Screwdriver tip T8-3/16	1	40.5682.000
	Torque limiting ratchet handle1.0Nm	1	40.6650.000
	Star screwdriver T8	1	40.0669.100
	Plates bender 4,0	2	40.4643.000
	Dissecting forceps Standard 14.5cm	1	30.3303.000
	Palette for instruments 4.0ChLP	1	40.5712.000

4.0ChLP talus plate

Ti	Len	L | R
1.8	41	3.7021.041

4.0ChLP plate for navicular bone

Ti	Len	L | R
1.8	53	3.4069.053



4.0ChLP plate for cuboid bone

Ti	L_1	L_2	L	R
1.8	15	26	3.4067.026	3.4068.026
	18	29	3.4067.029	3.4068.029

	Ti	Co			VA		
3.5164.xxx	✓		✓	✓		✓	2.4
3.5165.xxx	✓		✓	✓		✓	2.7

4.0ChLP curved plate

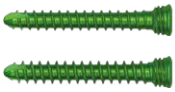
Ti		Len	L	R
1.8	4	39	3.4066.004	
	5	46	3.4073.005	3.4066.005
	6	54	3.4066.006	

4.0ChLP T plate oblique

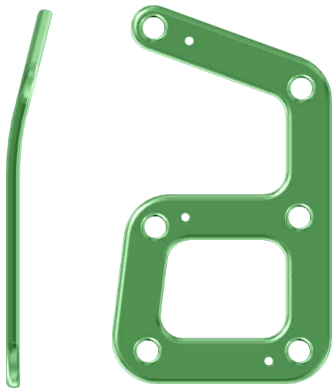
Ti	Len	L	R
1.8	33	3.4085.033	3.4086.033

4.0ChLP 3D plate

Ti	Len	L	R
1.8	40	3.4063.040	3.4064.040
	45	3.4064.045	3.4064.045
	50	3.4064.050	3.4064.050



	Ti	Co			VA		
3.5164.xxx	✓		✓	✓		✓	2.4
3.5165.xxx	✓		✓	✓		✓	2.7



4.0ChLP 6-type plate

Ti	Len	L	R
1.8	46	3.4071.046	3.4070.046
	50	3.4071.050	3.4070.050
	54	3.4071.054	3.4070.054

	Ti	Co			VA		
3.5164.xxx	✓		✓	✓		✓	2.4
3.5165.xxx	✓		✓	✓		✓	2.7

4.0ChLP rectangular plate

Ti	Len	L R
1.8	22	3.4061.022
	27	3.4061.027

4.0ChLP wide straight plate

Ti	Len	L R
1.8	51	3.4084.051
	60	3.4084.060
	66	3.4084.066

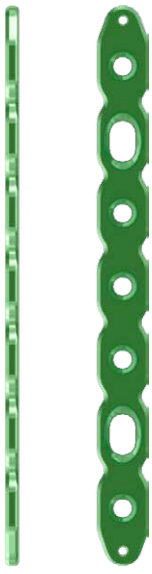
	Ti	Co			VA		
3.5164.xxx	✓		✓	✓		✓	2.4
3.5165.xxx	✓		✓	✓		✓	2.7
3.1220.xxx	✓		✓			✓	2.7

4.0ChLP metatarso-phalangeal plate

Ti	Len	L	R
1.8	39	3.4075.601	3.4074.601
	48	3.4075.602	3.4074.602
	59	3.4075.603	3.4074.603

4.0ChLP L plate

Ti		Len	L	R
1.8	2	28	3.4087.028	3.4088.028
	3	38	3.4087.028	3.4088.028
	4	48	3.4087.028	3.4088.028



4.0ChLP reconstruction plate

Ti		Len	L R
1.8	3	54	3.4072.503
	4	64	3.4072.504
	5	74	3.4072.505
	6	84	3.4072.506
	7	94	3.4072.507
	8	104	3.4072.508
	9	114	3.4072.509
	10	124	3.4072.510

	Ti	Co			VA		
3.5164.xxx	✓		✓	✓		✓	2.4
3.5165.xxx	✓		✓	✓		✓	2.7
3.1220.xxx	✓		✓			✓	2.7

4.0ChLP screw 2.4

Ster Non Ster

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

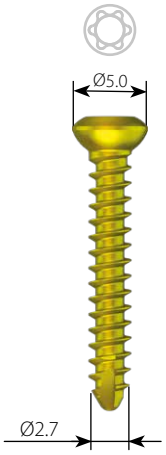
4.0ChLP screw 2.7

Ster Non Ster

Len	Ti
6	3.5165.006
8	3.5165.008
10	3.5165.010
12	3.5165.012
14	3.5165.014
16	3.5165.016
18	3.5165.018
20	3.5165.020
22	3.5165.022
24	3.5165.024
26	3.5165.026
28	3.5165.028
30	3.5165.030
32	3.5165.032
34	3.5165.034
36	3.5165.036
38	3.5165.038
40	3.5165.040

Cortical self-tapping screw 2.7

Ster Non Ster



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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