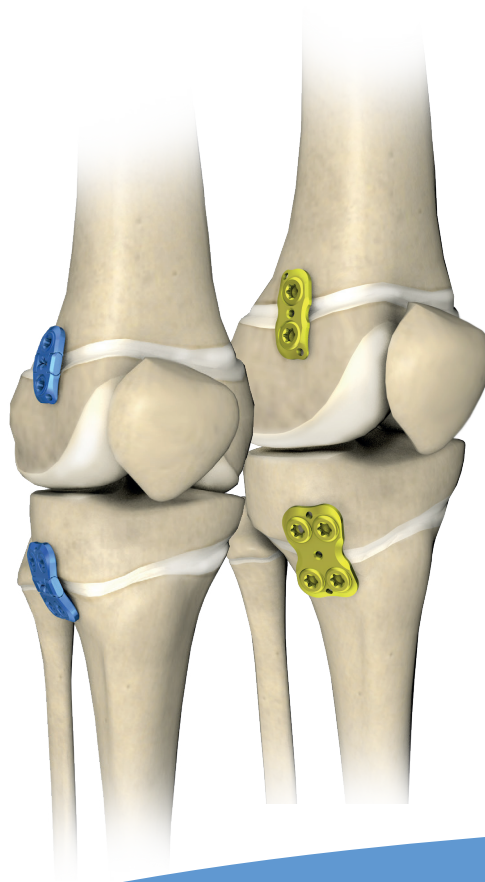


# ChM<sup>®</sup>












7.0 ChM Locked Plating  
ChLP system

7.0ChLP HEPI plates  
3.7098; 3.7099; 3.4159

- *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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*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 plates used for correction of the angle deformity of long bones by inhibiting longitudinal growth of the physis. 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

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Angular deformity of long bones of upper and lower limbs in patients with active epiphyseal plate.

### Plate selection and shaping

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The plates are available in different variants of screw holes spacing. This allows for optimal selection of the implant to the deformity type. Shaping of the plates 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.

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## 2. IMPLANT FEATURES

HEPI plates are compatible with screws of 7.0ChLP system. To facilitate their identification, both locking plates and screws are blue anodized, whereas non-locking plates and screws are gold anodized.

### Available plates versions

	Two-hole plate	Four-hole plate
hinged locking version <b>3.7098</b>		
non-hinged locking version <b>3.7099</b>		
non-locking version <b>3.4159</b>		

**Hole for Kirschner wire:**

- easier plate positioning,
- temporary plate stabilization.

**Plate design:**

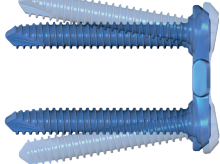
- anatomical profile fits the bone structure.

**Beveled profile of the plate's upper edge:**

- limited soft tissue irritation.

**Articulation mechanism:**

- the plate fits the bone shape at the implantation site.

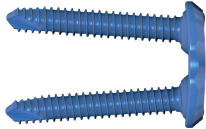


**Locking hole design:**

- 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 protrusion reduces surface area of the contact with the bone..

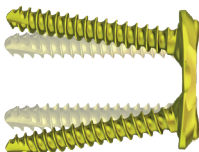
**Multi-directional locking screws positioning:**

- facilitated screws positioning in relation to the epiphyseal plate.

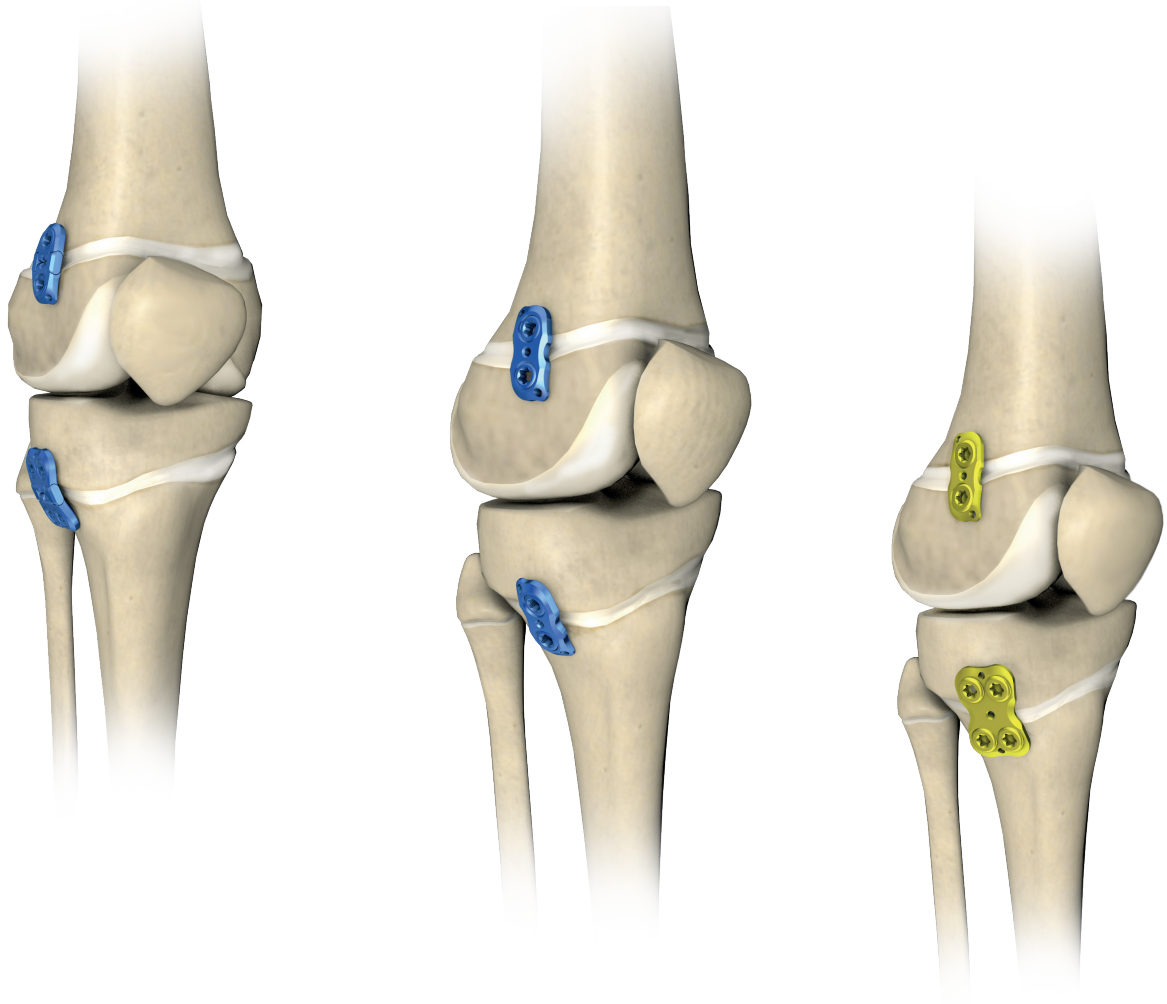


**Non-locking hole:**

- the screws can be inserted at a chosen angle.



7.0ChLP HEPI plate



### 3. SURGICAL TECHNIQUE

#### 3.1. PATIENT'S POSITIONING

It is recommended to place a patient supine.

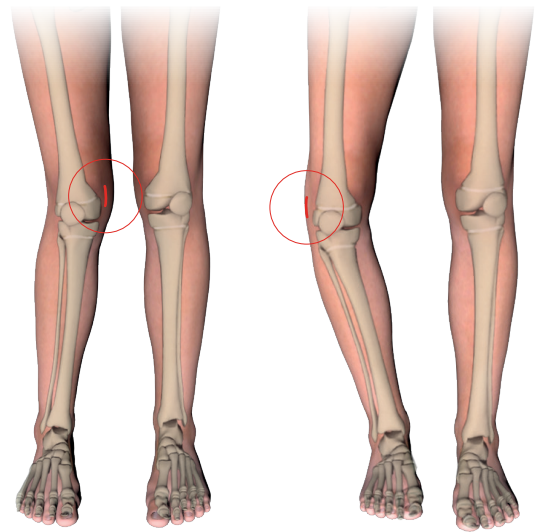


#### 3.2. SURGICAL APPROACH

The surgical approach depends on the type and location of the deformity. Perform a longitudinal skin incision of approx. 2-3 cm above the epiphyseal plate. Retract the tissues to expose the implantation site.



**NOTE:** confirm the activity and location of the epiphyseal plate using X-Ray imaging.



#### 3.3. IMPLANT SELECTION

Select the right size of an implant to the anatomical bone structure.



The length of the plate should allow insertion of screws above and below the epiphyseal plate.

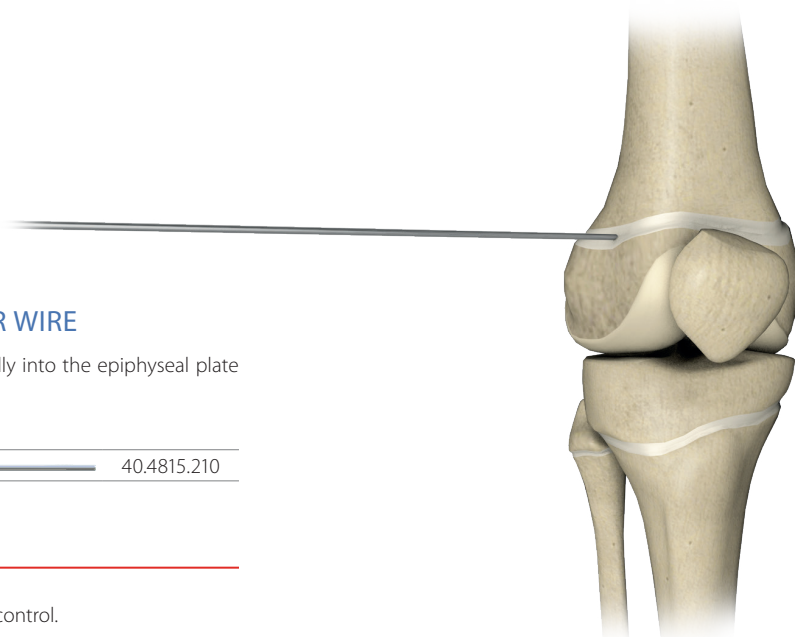
#### 3.4. INTRODUCTION OF KIRSCHNER WIRE

Insert Kirschner wire 2.0/210 [40.4815.210] centrally into the epiphyseal plate to a depth of approx. 1 cm.

 40.4815.210



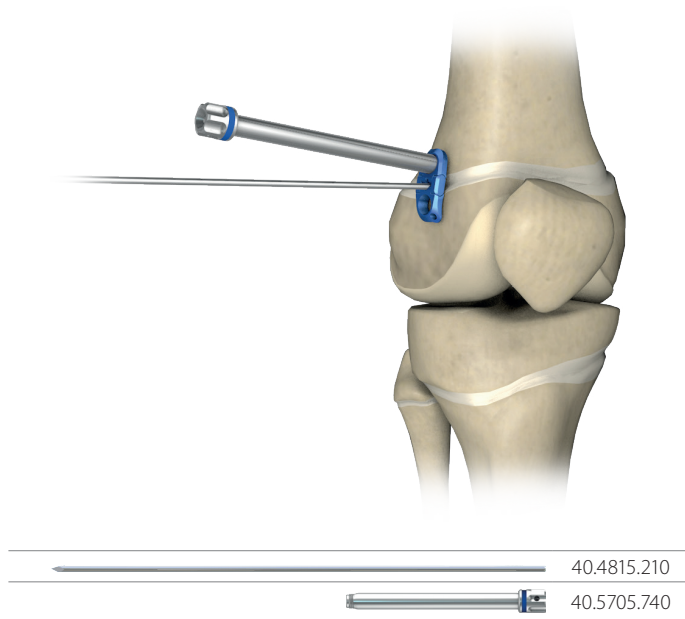
**NOTE:** introduce the wire under X-Ray control.



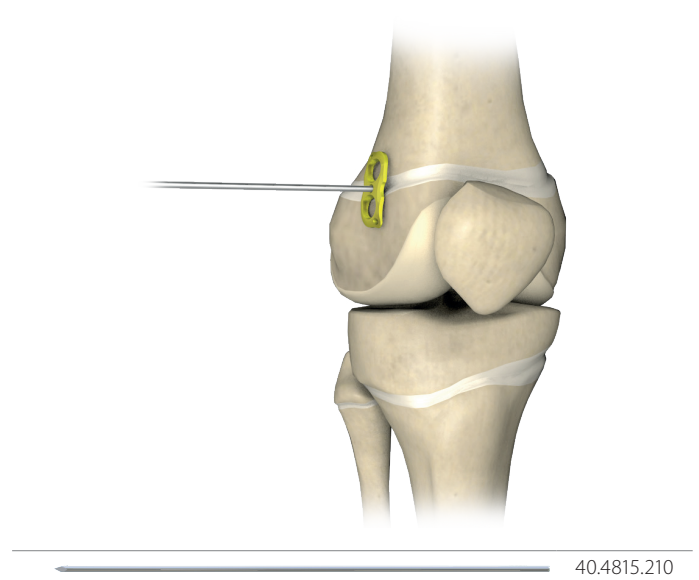
### 3.5. PLATE INSERTION

Implant the chosen plate using the Kirchner wire 2.0/210 [40.4815.210].

#### 3.5a. LOCKING PLATE INSERTION



#### 3.5b. NON-LOCKING PLATE INSERTION



To facilitate plate insertion, enter the guide sleeve 7.0/4.0 [40.5705.740] into the plate locking hole and then both onto the bone using Kirchner wire 2.0/210 [40.4815.210].

### 3.6. TEMPORARY PLATE STABILIZATION

If necessary, temporarily stabilize the implant position with Kirchner wires inserted into the dedicated holes in the plate.

### 3.7. SCREWS INSERTION

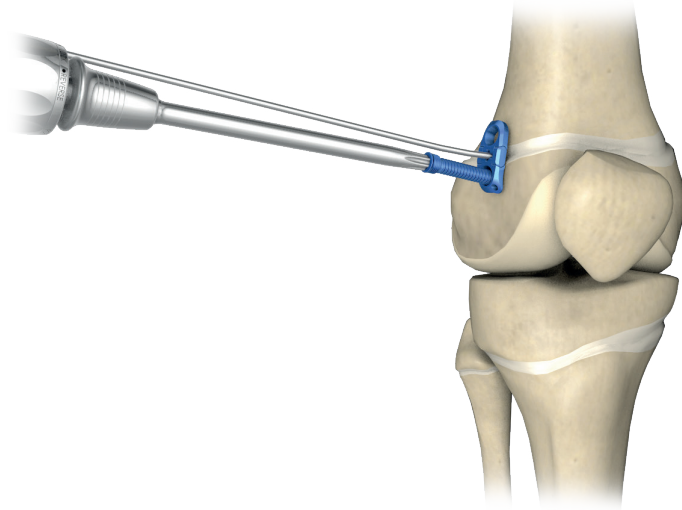


Make sure the screws do not interfere with the epiphyseal plate and the articular surface.

#### 3.7a. INTRODUCTION OF SCREWS TO A LOCKING PLATE

Insert **7.0ChLP** self-tapping screws 5.0 **[3.5210]** of appropriate length into the holes of the locking plate (*acc. to procedure 4a*). Use X-Ray imaging to verify the correct positioning of the plate and screws.

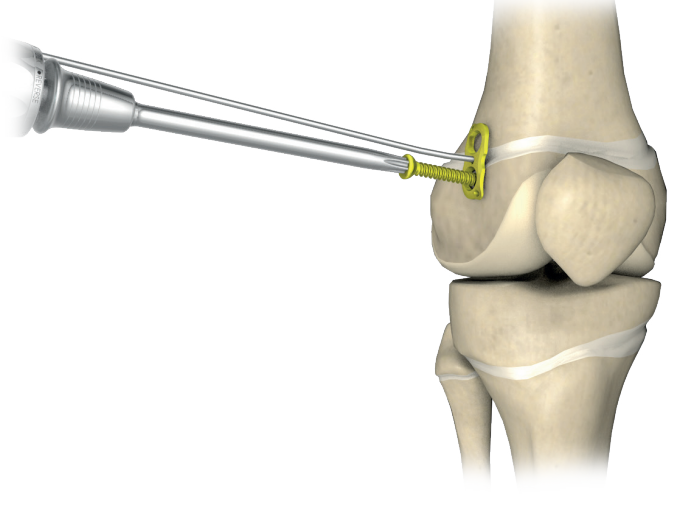
Remove the Kirschner wire.



#### 3.7b. INTRODUCTION OF SCREWS TO A NON-LOCKING PLATE

Insert cortical self-tapping screws 4.5 **[3.1471]** of appropriate length into the holes of the plate (*acc. to procedure 4b*). Use X-Ray imaging to verify the correct positioning of the plate and screws.

Remove the Kirschner wire.



### 3.8. WOUND CLOSURE

Before closing the wound, take X-Ray images in at least two projections to confirm implant position. Make sure all the screws are properly tightened.

Use appropriate surgical technique to close the wound.

## 4. SURGICAL PROCEDURES

### 4a. PROCEDURE OF 7.0ChLP SELF-TAPPING SCREW 5.0 [3.5210] INSERTION

#### Guide sleeve insertion

- Insert guide sleeve 7.0/4.0 [40.5705.740] into a locking hole of the plate.



40.5705.740

#### Hole drilling

Drill using drill with scale 4.0/210 [40.5651.212] until desired depth is reached.



40.5651.212

#### Measurement of hole depth

OPTION I: Read the length of the screw from the drill measure [40.5651.212]



40.5651.212

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



40.5675.500

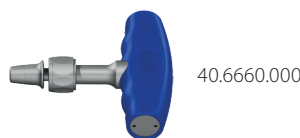
OPTION III: Having removed the guide sleeve 7.0/4.0 [40.5705.740], use depth measure [40.4639.550] to determine the length of a screw.



40.4639.550

#### Screw insertion

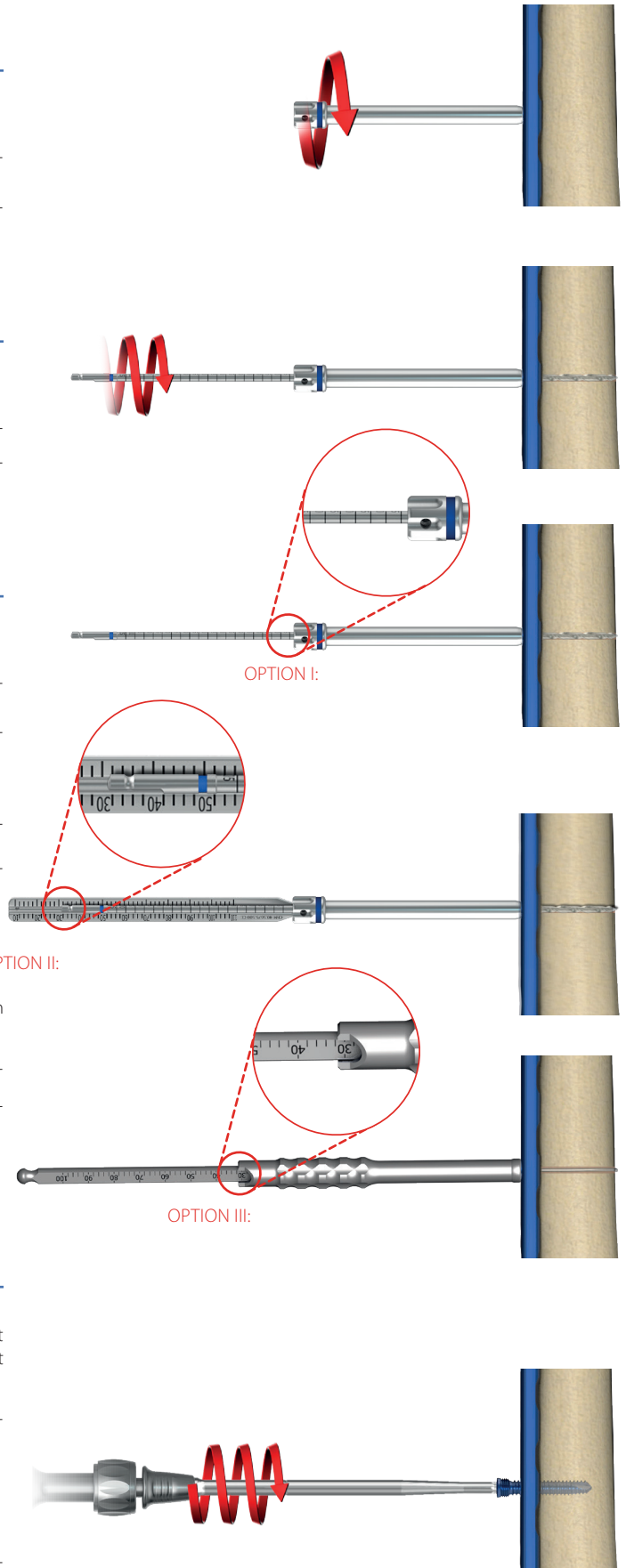
Remove the guide sleeve 7.0/4.0 [40.5705.740]. Use torque limiting ratchet handle T 4Nm [40.6660.000] and screwdriver tip T25 [40.5684.200] to insert the locking screw.



40.6660.000



40.5684.200





## 4b. PROCEDURE OF CORTICAL SELF-TAPPING SCREW 4.5 [3.1471] INSERTION

### Compression guide positioning

Position the compression guide 3.2 [40.4802.732] in a desired position:



### Hole drilling

Perform a hole through both cortices for a cortical screw 4.5 insertion. For drilling, use drill with scale 3.2/210 [40.5650.212] and compression guide in a desired position.



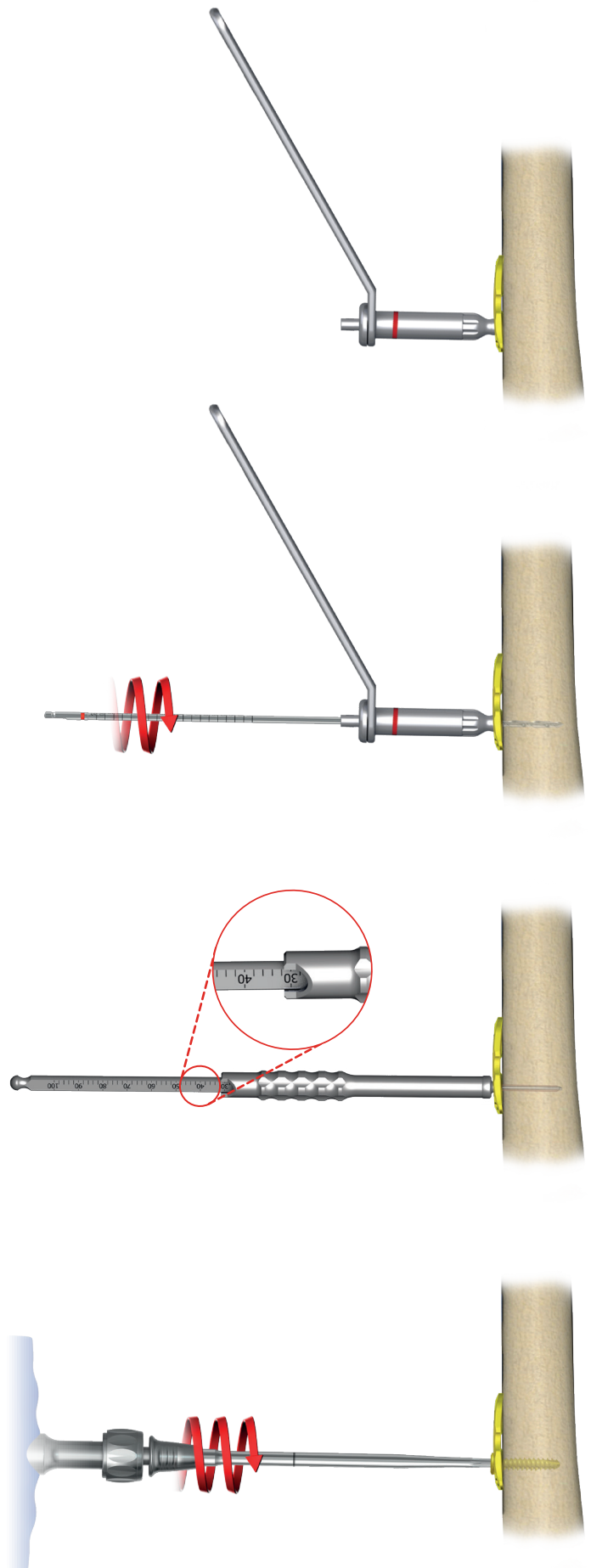
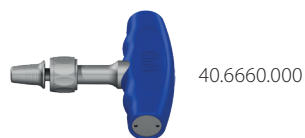
### Measurement of hole depth

Insert depth measure [40.4639.550] into drilled hole.



### Screw insertion

Insert cortical screw using torque limiting ratchet handle 4Nm [40.6660.000] and screwdriver tip T25 [40.5684.200].





## 5. POSTOPERATIVE PROCEDURE

Introduce appropriate post-operative treatment. The physician decides on the post-operative treatment and its conduct.

## 6. IMPLANT REMOVAL

The physician decides about implant removal. In order to remove the locking plate 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.

## 7a. INSTRUMENT SET

## Instrument set for 7.0ChLP 3.7098/7099/4159 4x4H

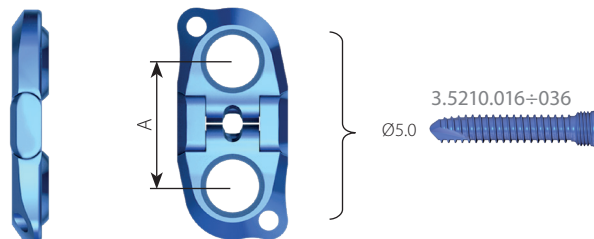
15.0207.105

	Name	Catalogue No.	Pcs
	Guide sleeve 7.0/4.0	40.5705.740	2
	Compression guide 3.2	40.4802.732	1
	Kirschner wire 2.0/210	40.4815.210	4
	Drill with scale 4.0/210	40.5651.212	2
	Drill with scale 3.2/210	40.5650.212	2
	Depth measure	40.4639.550	1
	Screwdriver tip T25-1/4	40.5684.200	1
	Torque limiting ratchet handle T 4Nm	40.6660.000	1
	7.0ChLP container lid 3.7098/7099/4159 4x4 H	14.0207.106	1
	7.0ChLP container 3.7098/7099/4159 4x4 H	14.0207.105	1

## 7.0ChLP HEPI plate 2hol.

O	A [mm]	Catalogue No.
2	12	3.7098.112
2	16	3.7098.116
2	20	3.7098.120

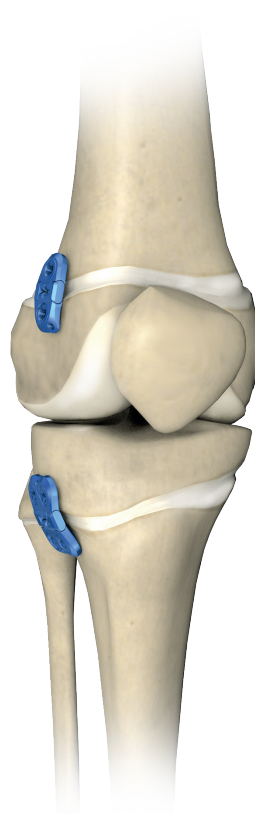
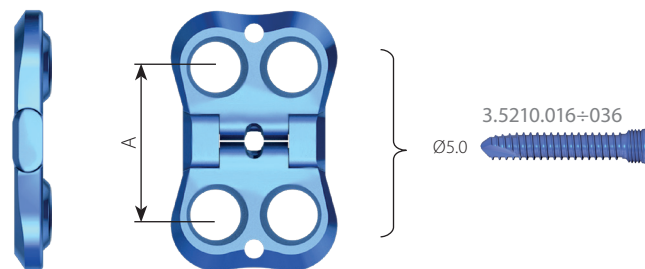
O – threaded holes number



## 7.0ChLP HEPI plate 4hol.

O	A [mm]	Catalogue No.
4	16	3.7098.216
4	20	3.7098.220

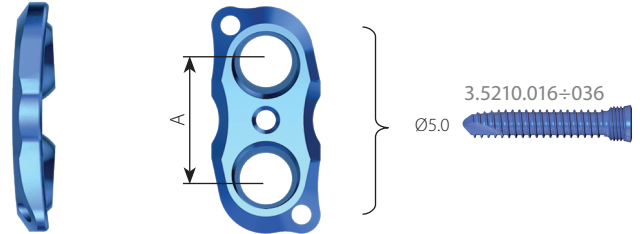
O – threaded holes number



## 7.0ChLP HEPI plate 2hol.

O	A [mm]	Catalogue No.
2	12	3.7099.112
2	16	3.7099.116
2	20	3.7099.120

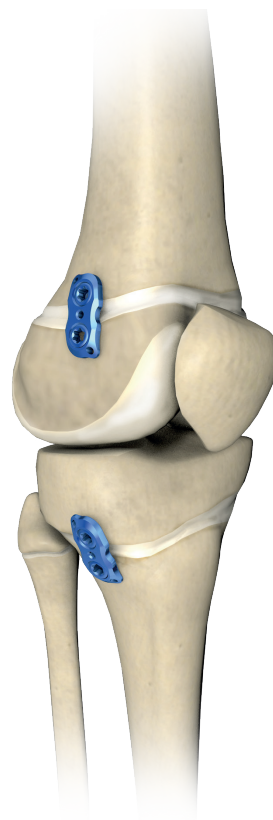
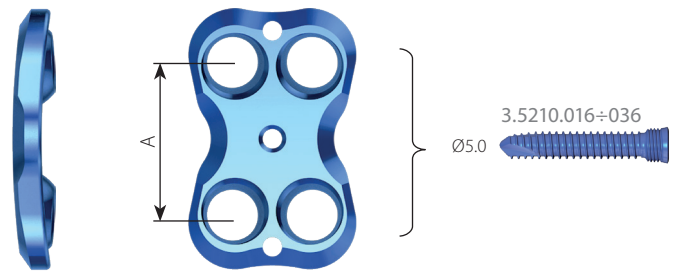
O – threaded holes number



## 7.0ChLP HEPI plate 4hol.

O	A [mm]	Catalogue No.
4	16	3.7099.216
4	20	3.7099.220

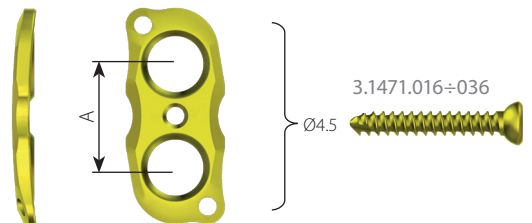
O – threaded holes number



### HEPI plate 2hol.

O	A [mm]	Catalogue No.
2	12	3.4159.112
2	16	3.4159.116
2	20	3.4159.120

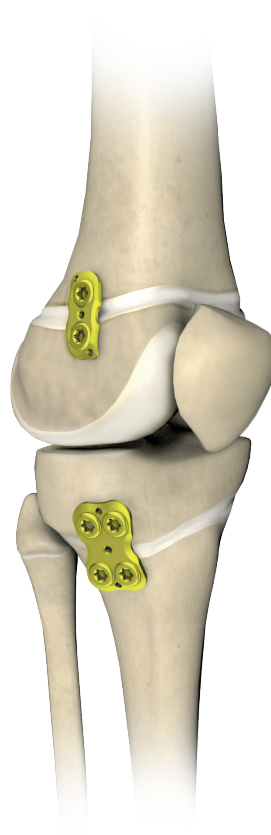
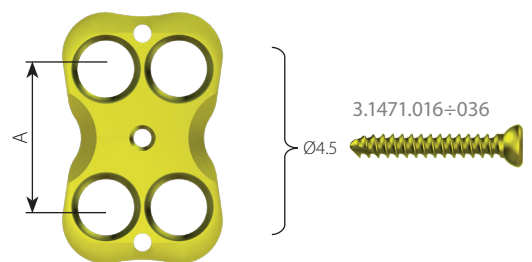
O – screws holes numer



### HEPI plate 4hol.

O	A [mm]	Catalogue No.
4	16	3.4159.216
4	20	3.4159.220

O – screws holes numer



Stand for 7.0ChLP implants 3.7098/7099/4159 4x2H

14.0207.601

	7.0ChLP HEPI plate 2hol.						
	7.0ChLP HEPI plate 4hol.						
	7.0ChLP self-tapping screw 5.0						
	<b>L [mm]</b>	16	20	24	28	32	36
	<b>Pcs</b>	4	4	4	4	4	4
	HEPI plate						
Cortical self-tapping screw 4.5							
<b>L [mm]</b>	16	20	24	28	32	36	
<b>Pcs</b>	4	4	4	4	4	4	

\* Stand does not include implants

7c. SCREWS



7.0ChLP self-tapping screw 5.0

	16	3.5210.016
	20	3.5210.020
	24	3.5210.024
	28	3.5210.028
	32	3.5210.032
	36	3.5210.036

Cortical self-tapping screw 4.5

	16	3.1471.016
	20	3.1471.020
	24	3.1471.024
	28	3.1471.028
	32	3.1471.032
	36	3.1471.036



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