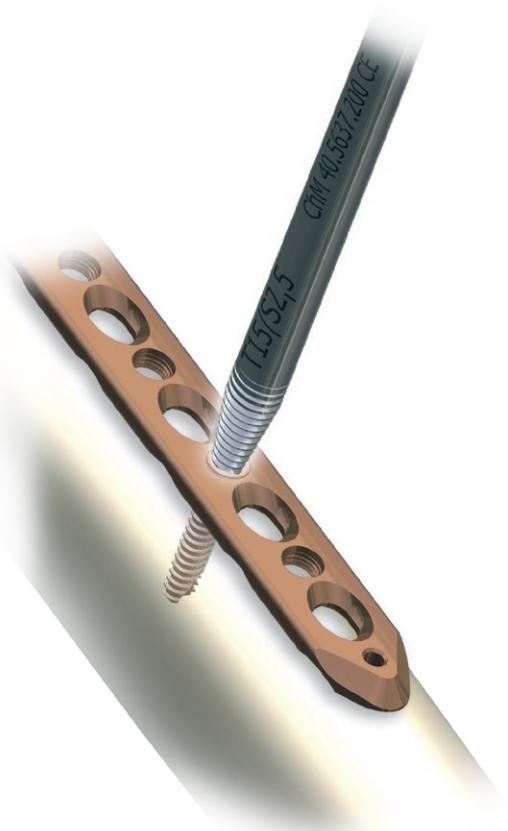


CHM®

## ChLP SCREWS REMOVING

- INSTRUMENT SET 40.5655.000
- SURGICAL TECHNIQUE



#### **SYMBOLS DESCRIPTION**

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Caution - pay attention to a special procedure.

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Perform the activity under X-Ray control.

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Information about the next stages of a procedure.

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Proceed to the next stage.

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Return to the specified stage and repeat the activity.

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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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## I. INTRODUCTION

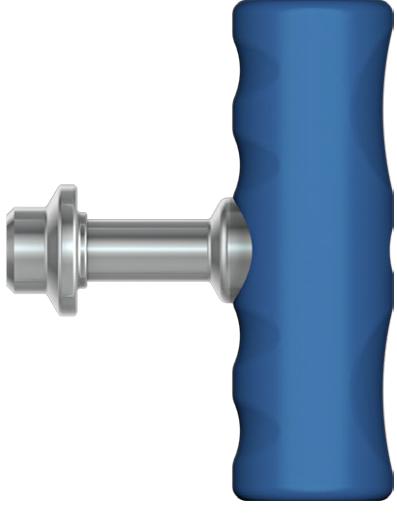
Instrument set is intended for implants removing of **ChLP** plating system. For selection of adequate instruments, depending on type of removed implant, use the table presented below.

**TABLE 1.** Selection of adequate instruments for removing of ChLP screws

		Instruments								
System	Ø screw	Screw socket		Screwdriver tip		Extractor (used for socket)	Drill bit	Trepbine	Extractor (used for cortical part)	Holder
		S	T	S	T					
4.0ChLP	2.4	-	8	-	40.5715.000	40.5637.400	40.5657.026	40.5639.100	40.5999.100	40.1973.000
	2.7									
5.0ChLP	2.4	2.5	15	40.5717.000	40.5716.000	40.5637.200	40.5657.034	40.5639.100	40.5999.100	40.1973.000
	2.7							40.5639.200	40.5999.200	40.1761.000
	3.5									
	3.9									
7.0ChLP	5	3.5	25	40.5719.000	40.5718.000	40.5637.300	40.5657.047	40.5639.300	40.5999.300	40.1761.000
	5.4									
	6.5	5	30	40.5721.000	40.5720.000	40.5637.500	40.5657.062	40.5639.400	40.5999.400	40.1761.000
	7.3									

## II. INSTRUMENTS

**40.5655.000**

		Name	Catalogue No.	Pcs
1		Holder for 1.5-2.7mm screws	<b>40.1973.000</b>	1
2		Holder for 3.5-6.5mm screws	<b>40.1761.000</b>	1
3		Extractor for <b>ChLP</b> screws - T8	<b>40.5637.400</b>	1
4		Extractor for <b>ChLP</b> screws - T15/S2.5	<b>40.5637.200</b>	1
5		Extractor for <b>ChLP</b> screws - T25/S3.5	<b>40.5637.300</b>	1
6		Extractor for <b>ChLP</b> screws - T30/S5	<b>40.5637.500</b>	1
7		Screwdriver tip T8/100 - 1/4	<b>40.5715.000</b>	1
8		Screwdriver tip T15/100 - 1/4	<b>40.5716.000</b>	1
9		Screwdriver tip T25/100 - 1/4	<b>40.5718.000</b>	1
10		Screwdriver tip T30/100 - 1/4	<b>40.5720.000</b>	1
11		Screwdriver tip S2.5/100 - 1/4	<b>40.5717.000</b>	1
12		Screwdriver tip S3.5/100 - 1/4	<b>40.5719.000</b>	1
13		Screwdriver tip S5/100 - 1/4	<b>40.5721.000</b>	1
14		Trephine 2.4/2.7	<b>40.5639.100</b>	1
15		Trephine 3.5	<b>40.5639.200</b>	1
16		Trephine 5.0	<b>40.5639.300</b>	1
17		Trephine 7.3	<b>40.5639.400</b>	1
18		Extractor for <b>ChLP</b> screws 2.4/2.7	<b>40.5999.100</b>	1
19		Extractor for <b>ChLP</b> screws - 3.5	<b>40.5999.200</b>	1
20		Extractor for <b>ChLP</b> screws - 5.0	<b>40.5999.300</b>	1
21		Extractor for <b>ChLP</b> screws - 7.3	<b>40.5999.400</b>	1
22		Quick coupling handle T-type	<b>40.5638.000</b>	1

		Name	Catalogue No.	Pcs
		Stand insert for instrument set for removing <b>ChLP</b> screws	<b>40.5656.100</b>	1
18		Perforated aluminum lid 1/2 306x272x15mm Gray	<b>12.0751.200</b>	1
		Container with solid bottom 1/2 306x272x85mm	<b>12.0751.100</b>	1

**ATTENTION**

Drills are not included in the set. Drills are single-use only, delivered as sterile products. Do not regenerate and resterilize after usage.

**ATTENTION**

Do not use HSS drill (*TiN*) for drilling in the bone!



		Name	Catalogue No.	Pcs
1		Drill 2.6	<b>40.5657.026</b>	1
2		Drill 3.4	<b>40.5657.034</b>	1
3		Drill 4.7	<b>40.5657.047</b>	1
4		Drill 6.2	<b>40.5657.062</b>	1

### III. UNLOCKING OF ChLP SCREWS


**NOTE:**

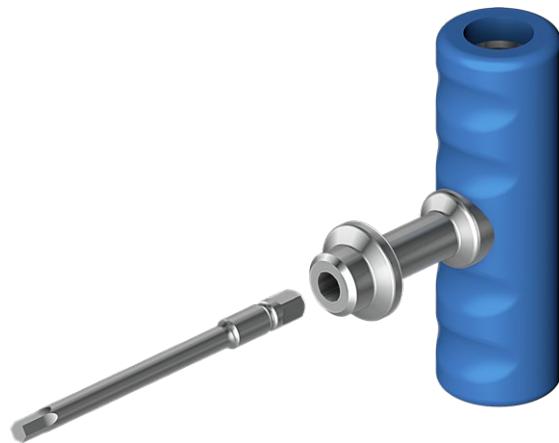
Make sure that the screwdriver tip is inserted as deep in the screw head as possible.  
Clean the screw head thoroughly prior to the introduction of the screwdriver tip.

Select a proper screwdriver tip (*column 1 of table 1*) for adequate screw socket. (Fig.1)



**FIG. 1.**

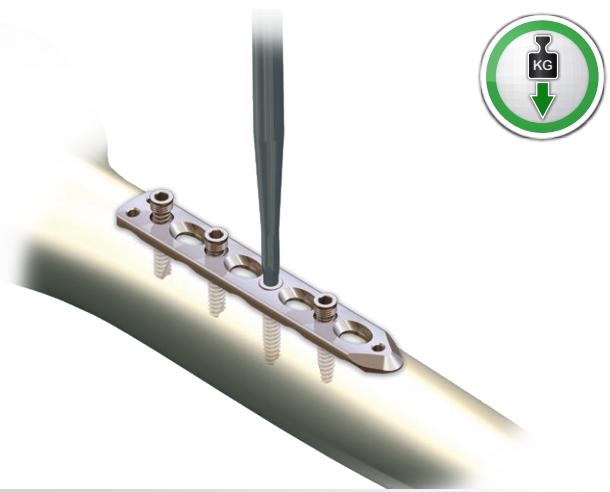
Assembly the screwdriver tip with quick coupling T handle [40.5638.000] or drive. (Fig.2)



**FIG. 2.**

Unlock all the **ChLP** locking screws in the plate. It will eliminate the risk of the plate rotation while the last locking screw unlocking. (Fig.3)

Unscrew loosened **ChLP** screws and remove the plate from the bone.



**FIG. 3.**



In the case of socket damaging, go to point IV.



In the case of success, go to point VIII.

## IV. EXTRACTOR USAGE

Select a proper extractor of **ChLP** screws (column 2 of the table 1) for adequate socket [Fig.4]. Assembly the extractor with quick coupling T handle [40.5638.000] or drive (Fig.5).



FIG. 4.

**ATTENTION!**

It is recommended to cover the surrounding soft tissues.

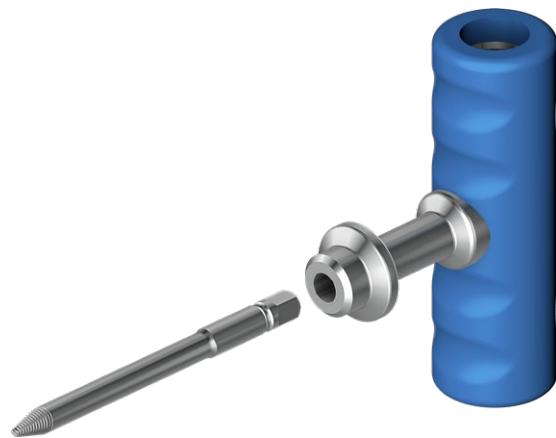


FIG. 5.

Place the tip of the extractor in screw socket. Turning counter-clockwise (**left-handed turns**), with axial load, unscrew the screw. Remove all implants. (Fig.6).

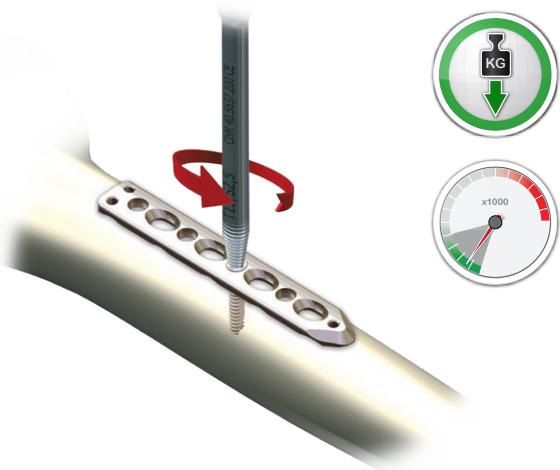


FIG. 6.

**Screw removal from the extractor**

Using a chosen holder (column 6 of table 1), hold the removed screw and by turning the extractor clockwise, unscrew the screw from the extractor thread (Fig.7.)



FIG. 7.



In the case of failure, go to point V.



In the case of success, go to point VIII.

## V. DRILLING

Select a proper drill diameter (*column 3 of the table 1*). (Fig.8)



FIG. 8.

Mount the drill bit in drive and start the drilling process (Fig.9).

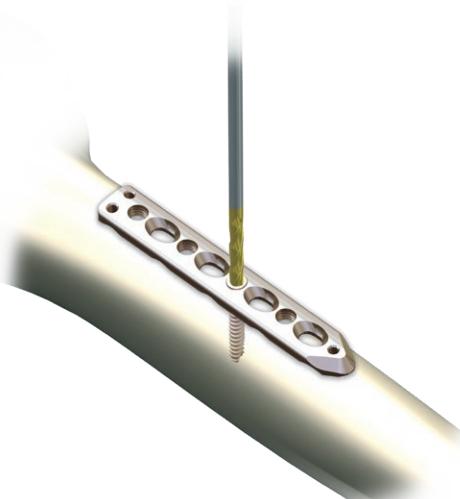


FIG. 9.

Continue the drilling proces until the screw head has been reamed (Fig.10).

During the drilling process it is necessary:

- to begin the drilling with an already rotating drill bit with very low axial pressure;
- to maintain the selected drill axis;
- to avoid using any excessive force;
- to avoid using any excessive rotational speed;
- to use manual cooling with the sterile physiological saline;
- to systematically suck off and remove the drilling residue.



**ATTENTION!**  
It is possible to partially pre-drill the damaged screw socket and reuse the extractor (see point III).



**ATTENTION!**  
Stop the drilling process immediately as the screw head has been reamed.  
A properly conducted drilling process makes it impossible for the drill bit to have contact with the tissues.



**Important:**

1. Cover the drilling area with the gauze soaked with physiological saline to secure surrounding tissues from material remains of drilling.
2. Use the irrigation and suction system while drilling to remove the material remains.
3. One drill bit can be used for reaming of maximum two screw sockets.

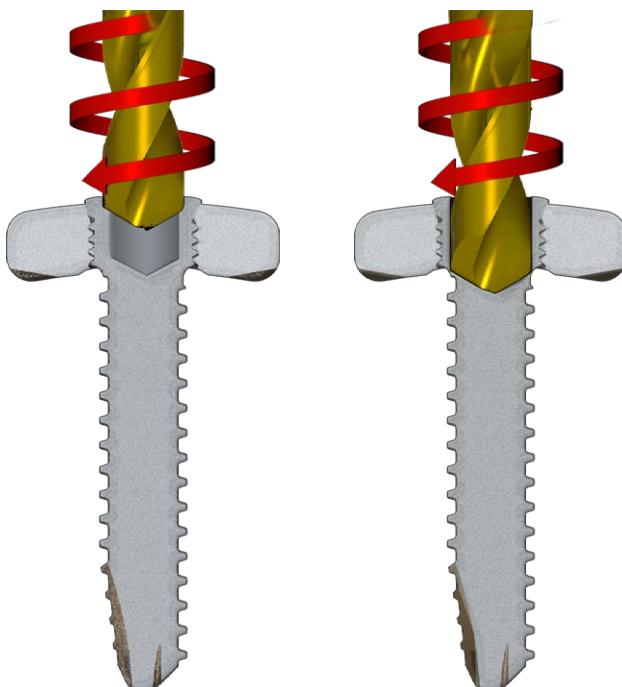


FIG. 10.

## VI. TREPHINE USAGE



If the screw protrudes from the bone (Fig. 11), do not use trephines, go to the point VII.

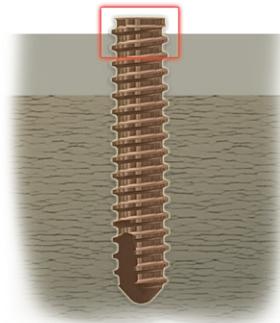


FIG. 11.

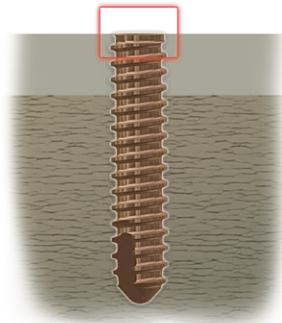


FIG. 12.



FIG. 13.

Select a proper trephine (Fig. 13) adequate to screw diameter (column 4 of the table 1). Assembly the trephine with T handle [40.5638.000] or drive (Fig. 14).

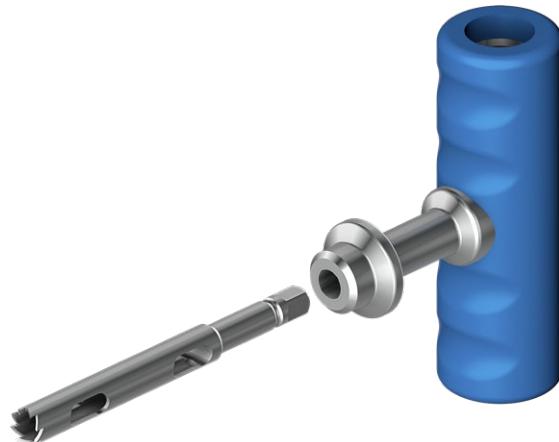


FIG. 14.

While turning counter-clockwise (**left-handed turns**) ream the cortical bone to the desirable depth (about 5mm) (Fig. 15).

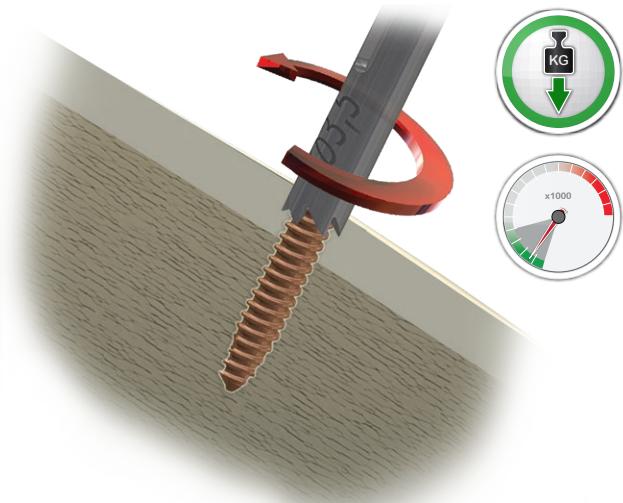


FIG. 15.

## VII. CORTICAL SCREW PART REMOVAL

Use extractor (*section VII.1*) or holder (*section VII.2*) to remove the cortical part of locking screw.

### VII.1. Use of extractor of screw cortical part

Select a proper extractor (*column 5 of the table 1*) to the diameter of the cortical part of the screw (*Fig. 16*)



FIG. 16.

Mount the extractor with quick coupling T handle [40.5638.000] or drive. (*Fig. 17*)

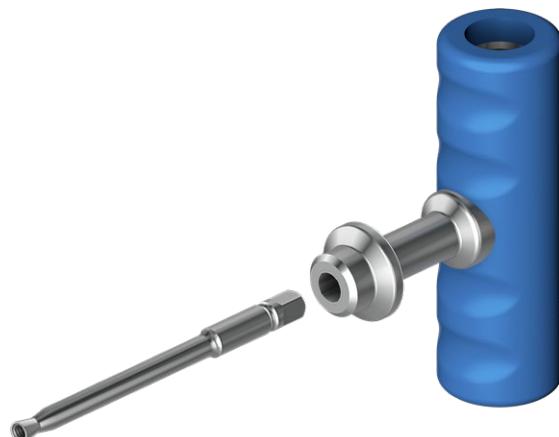


FIG. 17.



**ATTENTION:**  
It is recommended to cover the surrounding soft tissues.

Place the tip of the extractor in the axis of cortical part of the screw. Turning counter-clockwise (*left-handed turns*), with axial load, remove the remaining in the bone screw part. (*Fig. 18*.)

While removing the screw, it is necessary:

- to maintain the selected axis and direction throughout the entire screw removing process;
- to maintain slow rotational speed;
- to use manual cooling with the sterile physiological saline;



**IMPORTANT:**

1. Cover the surgical site with the gauze soaked in physiological saline to secure surrounding tissues from material remains of screw removal.
2. Use the irrigation and suction system to remove the material remains of screw removal.

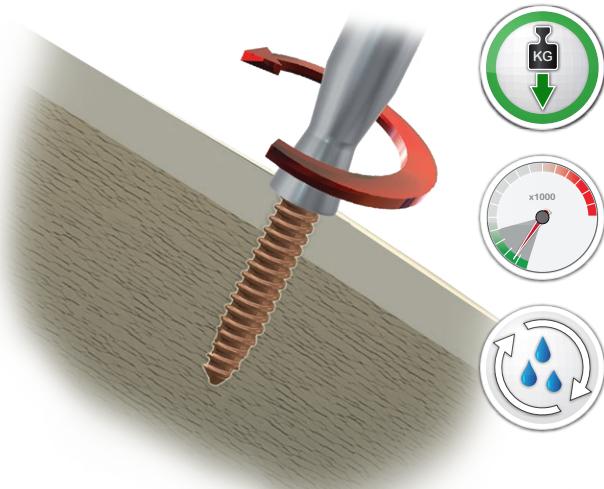


FIG. 18.

### Screw removal from the extractor

Using a chosen holder (*column 6 of table 1*), hold the removed cortical part of the screw and by turning the extractor clockwise, unscrew the screw from the extractor (*Fig. 19*.)



FIG. 19.

## VII.2. Holder usage

Choose the proper holder to match the cortical diameter of the screw (*column 6 of the table 1*) (Fig.20).

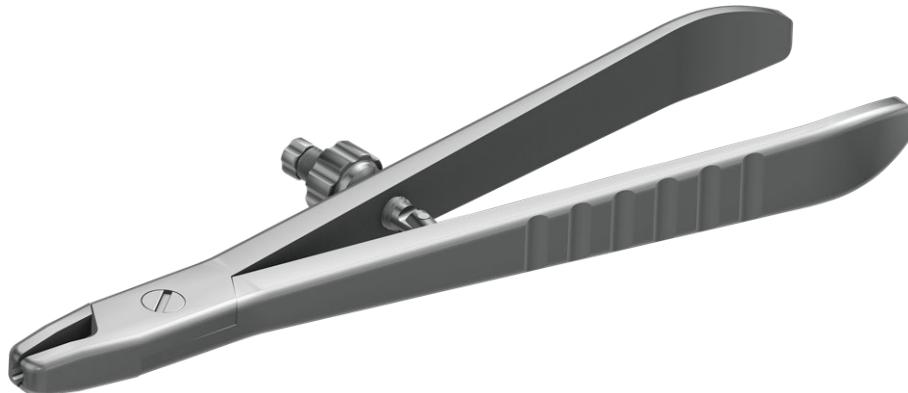


FIG. 20.

Remove the remaining cortical part of the screw from the bone (Fig.21).

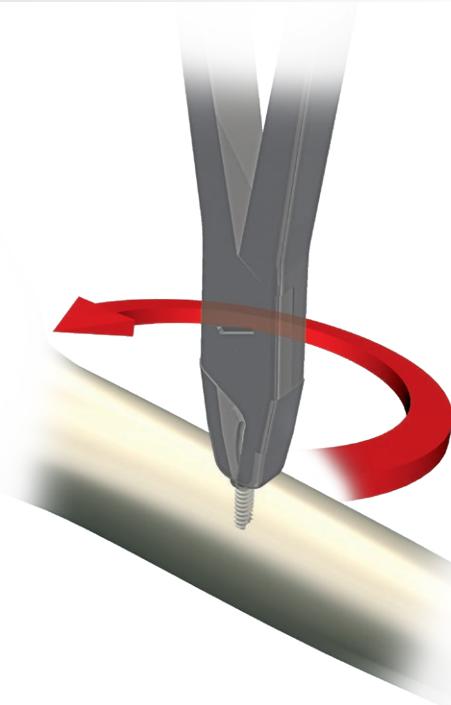


FIG. 21.

## VIII. WOUND CLOSURE

Before closing, clean the wound. Perform a final X-ray examination to confirm the removal of all implants, their parts or other undesirable materials from the body.





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