ST/80-301





LOCKING IMPLANTS SYSTEM - HAND

- SURGICAL TECHNIQUE
- IMPLANTS
- INSTRUMENT SET



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SYMBOLS DESCRIPTION

Ti	Titanium or titanium alloy	H	H length [mm]
Co	Cobalt	\bigcirc	Angle
	Left	88 340	available lengths
R	Right	4-22	Available number of holes
LR	Available versions: left/right	1.8	Thickness [mm]
Len	Length	1:1	Scale 1:1
\bigcirc	Torx drive		Number of threaded holes in the shaft part of the plate
Ø	Torx drive cannulated		Number of locking holes in the plate
\bigcirc	Hexagonal drive	VA	Variable angle
\bigcirc	Hexagonal drive cannulated	\bigcirc	Cortical
\bigcirc	Cannulated		Cancellous
	Locking	Ster Non Ster	Available in sterile/ non- sterile condition
	Diameter [mm]		Refer to surgical technique
$\mathbf{\Lambda}$	Caution - pay attention to a special procedure.		
	Perform the activity under X-Ray control.		
i	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 3.0ChLP locked plating system used for stabilization of small bones of the hand. 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),
- nstrument set used in the surgery,
- surgical technique.

Indications

- fractures of small bones of the hand,
- bone fracture mal-, and non-unions,
- surgical corrections, osteotomies.

Plate selection and shaping

The plates are available in various lengths and widths, for left and right limb separately. This allows for optimal selection of the implant to the fracture type. Shaping of the plates in allowed.

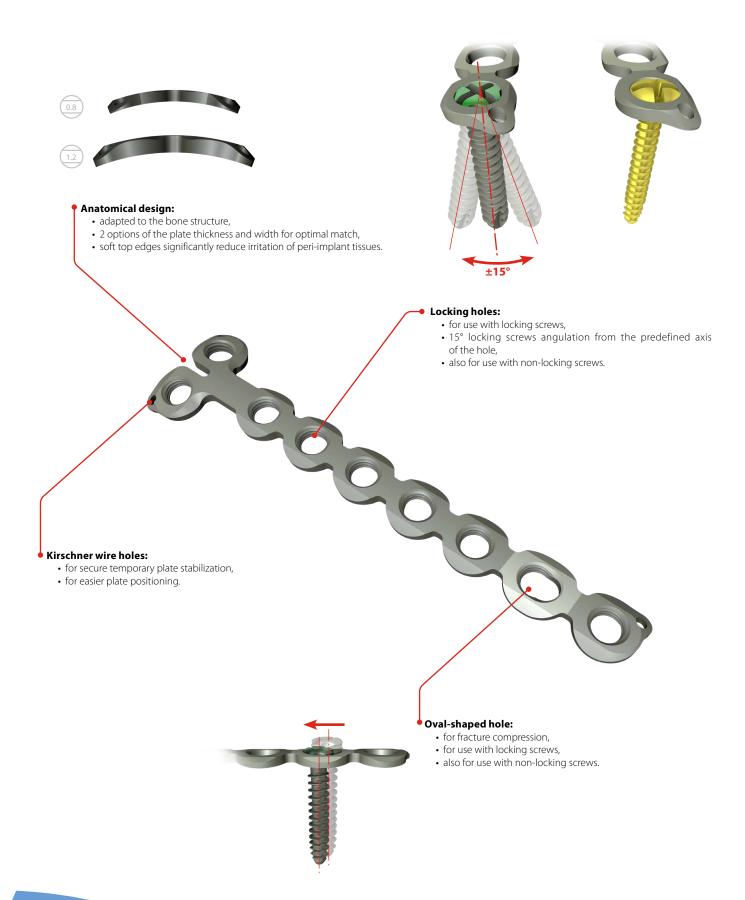


Before using the product, carefully read the Instructions for Use. It contains, among others, indications, contraindications, side effects, recommendations and warnings related to the use of the product.

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

2. IMPLANT DESCRIPTION

Small plates are a part of 3.0ChLP system. This system includes also compatible locking screws. To facilitate their identification, both titanium plate and screws are marked grey.



Features of 3.0ChLP screws system:

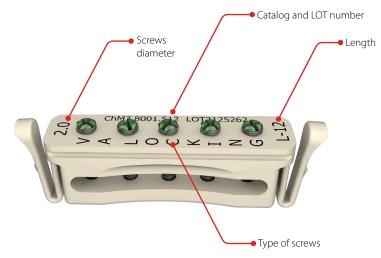
- optimal implant selection all system screws are compatible with all holes in the plate,
- easy identification screws marked as specified in the table (Tab.1) below.
- color coding a color has been assigned to each screw diameter and compatible instrument used for its implantation.

Screw diameter	Screw color	VA locking screws	Non-locking screws
1.2mm	Blue	_	
1.5mm	Yellow		
2.0mm	Green		
2.3mm	Brown		

Tab. 1. Table of colors assigned to the screws

All 3,0ChLP screws are packed in collective packages (clip magazines) - 5 screws of a given length in each clip. The clip is also provided with additional information to facilitate the identification of the screws:

- type of screws (VA LOCKING, CORTICAL),
- screws diameter (1.2, 1.5, 2.0, 2.3)
- screws length,
- catalog and LOT number.





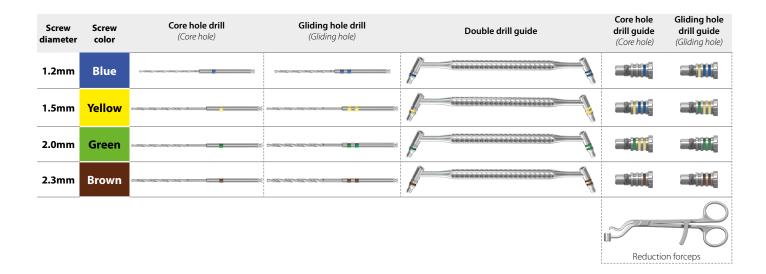
Clip magazines with screws are distributed on the stand for 3.0ChLP screws 4x2H 1/2H [14.0203.501].

3. INSTRUMENTS DESCRIPTION

The instruments are marked with the color assigned to the screw diameter. Drills and guides have 1 or 2 color stripes:

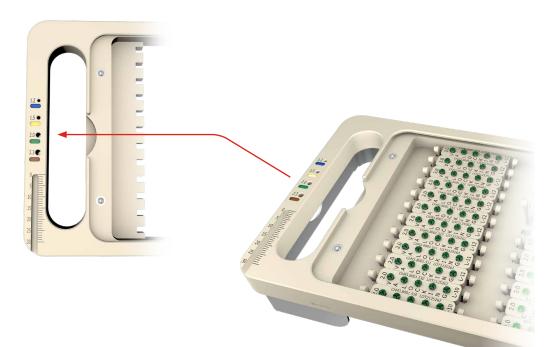
- single color stripe the instrument for drilling the core holes,
- double color stripes the instrument for drilling the gliding hole.

Color coded instruments list:



The stand for screws has been equipped with:

- holes for screws diameter verification,
- color markers to facilitate the selection of compatible instruments,
- a measure for screws length verification.



4. SURGICAL TECHNIQUE

4.1. FRACTURE REDUCTION

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

4.2. IMPLANT SELECTION

Select the right implant to the type and place of fracture, bone size and structure. If necessary, shape (*acc. to 5c point*) and trim (*acc. to 5d point*) the plate

4.3. TEMPORARY PLATE STABILIZATION

Stabilize the position of the implant inserting guide rods 0.8/150 **[40.8132.150]** into dedicated holes of the plate.

40.8132.150



Perform X-Ray control of the fracture reduction

4.4. SCREWS INSERTION IN THE EPIPHYSEAL PART OF THE PLATE

Insert locking or cortical screw of a suitable length and diameter into the locking holes of the epiphyseal part of the plate (acc. to procedure 5b).

4.5. SCREWS INSERTION IN THE OVAL-SHAPED HOLE OF THE SHAFT PART OF THE PLATE

Insert locking or cortical screw of a suitable length and diameter into the oval-shaped hole of the shaft part of the plate (*acc. to procedure 5a*). Compress the fracture fragments if necessary.

4.6. SCREWS INSERTION IN THE SHAFT PART OF THE PLATE

Insert locking or cortical screws of a suitable length and diameter into the locking holes of the shaft part of the plate (*acc. to procedure 5b*).

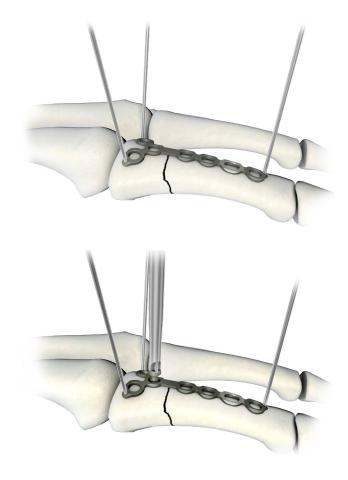


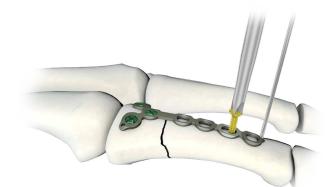
Insert the cortical screws into the fracture before inserting the loc-king screws.

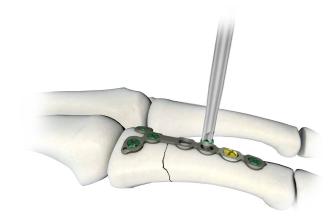
The doctor decides about the order and number of locking and cortical screws to be inserted.

4.7. 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.







5. SURGICAL PROCEDURES

5.a. PROCEDURE OF A SCREW INSERTION INTO THE LOCKING HOLE

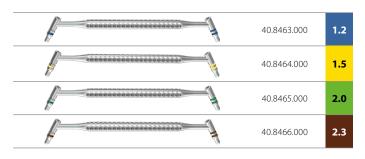
Position the drill guide

Position the drill guide in the hole.



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.

Exceeding the 15° angulation may prevent the correct locking of the VA screw in the hole.



Hole drilling

Use a dedicated drill to drill a hole in a desired position and determined depth.



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.

Drill under X-Ray control, to avoid the collision of the drill with the already implanted screws.

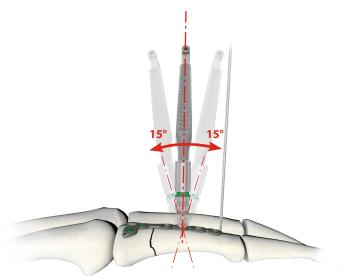
(m)	40.8467.660	1.2
	40.8468.670	1.5
	40.8470.670	2.0
conconconco M	40.8479.670	2.3

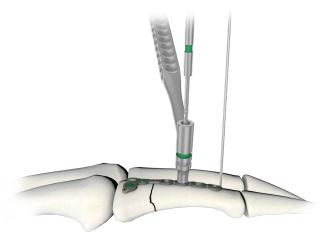
Measurement of hole depth

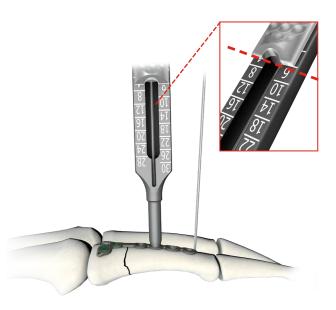
Insert depth measure **[40.4640.500]** into drilled hole until the hook of the measure rests against the outer surface of the other cortex.



40.4640.500









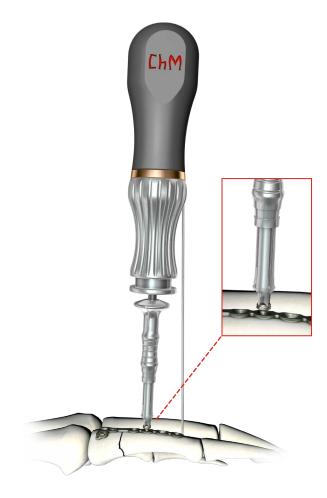
Screw insertion

Use quick coupling handle **[40.6405.300]** and screwdriver tip X **[40.6449.057]** or screwdriver tip X with holder **[40.8475.000]** to insert the screw.



If screwdriver tip X with holder **[40.8475.000]** is used, remember to remove the holder from the screw head for final locking it in the plate.





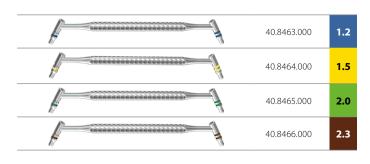
5.b. PROCEDURE OF SCREW INSERTION INTO THE OVAL-SHAPED HOLE

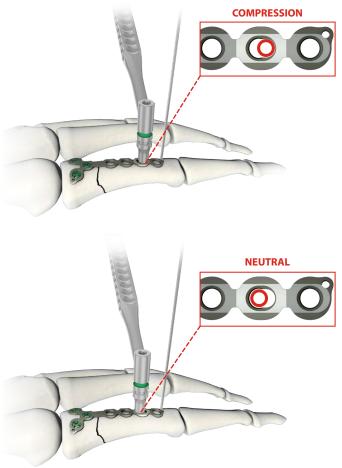
Position the drill guide

Position the drill guide in the desired position (compression or neutral).



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.





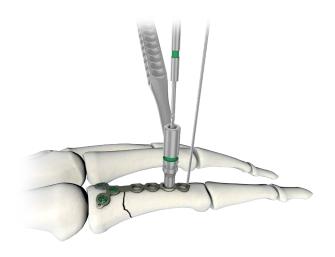
Hole drilling

Use a drill dedicated to the selected screw diameter and positioned as desired to drill a hole.



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.

40.8467.660	1.2
40.8468.670	1.5
40.8470.670	2.0
40.8479.670	2.3

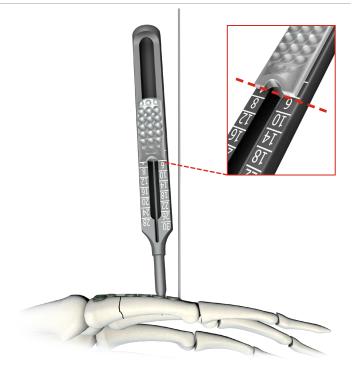


Measurement of hole depth

Insert depth measure **[40.4640.500]** into drilled hole until the hook of the measure rests against the outer surface of the other cortex.



40.4640.500



Screw insertion

Shaping of the plates should only be performed with the use of plate bending pliers **[40.8460.100]**.



If screwdriver tip X with holder **[40.8475.000]** is used, remember to remove the holder from the screw head for final locking it in the plate.





5.c. PLATE SHAPING

Shaping of the plates should only be performed with the use of plate bending pliers **[40.8460.100]**.



Place the two adjacent holes of the plate in the jaws and tighten the pliers.

Bend the plate as required, but do not exceed $20^\circ \div 25^\circ$ at a time. If necessary, repeat shaping by positioning the plate on the next two holes.



ChM

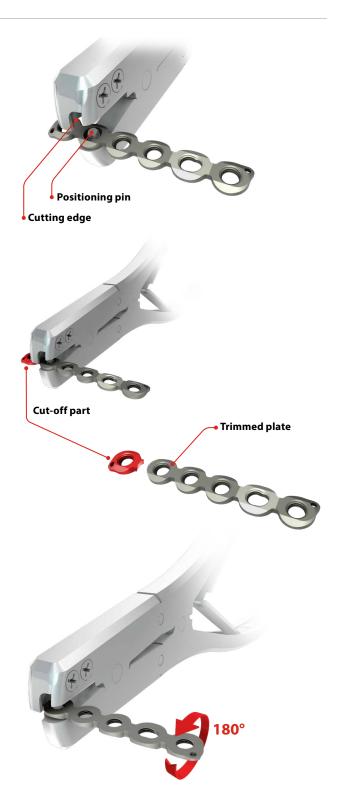
5.d. PLATE TRIMMING

For trimming, only the plate cutting pliers **[40.8406.100]** can be used.



Determine the required implant length and position the plate hole on the positioning pin.

Close the arms of the pliers to cut the plate. When cutting, hold the cut-off part of the plate. The trimmed plate will remain on the positioning pin.





Sharp edges removal

Rotate the plate by 180°. Position the last hole of the plate on the positioning pin. Close the arms of the pliers again. Sharp edges will be dulled.

6. LAG SCREW SURGICAL TECHNIQUE

6.1. IMPLANT SELECTION

Select the appropriate screw diameter for the type and location of the fracture, bone size and structure.

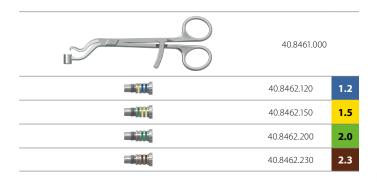
6.2. GLIDING HOLE DRILLING

Drill guide installation

Screw in the dedicated drill guide into the sleeve of the reduction forceps **[40.8461.000]**.



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.



Forceps positioning on a bone

Set the reduction forceps on the bone in a position appropriate for the type and location of the fracture. Close the arms of the forceps with adequate force.

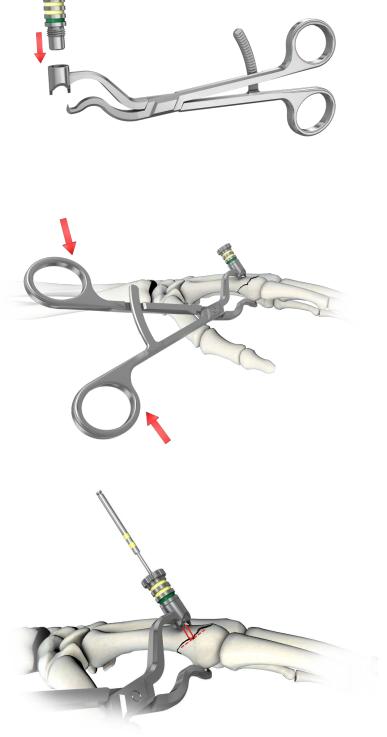
Hole drilling

Using a drill dedicated to the selected screw, make a gliding hole to the desired depth.



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.

40.8468.660	1.2
 40.8469.670	1.5
40.8471.670	2.0
40.8472.670	2.3



6.3. CORE HOLE DRILLING

Drill guide installation

Screw in the dedicated drill guide into the sleeve of the reduction forceps **[40.8461.000]**.



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.

==:::::;	40.8462.080	1.2
	40.8462.120	1.5
	40.8462.150	2.0
=8000	40.8462.180	2.3



Using a drill dedicated to the selected screw, make a core hole to the desired depth.



Use instruments marked according to the table in section 3. INSTRUMENTS DESCRIPTION.

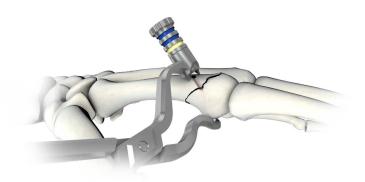
Drill under X-Ray control, to avoid the collision of the drill with the already implanted screws.

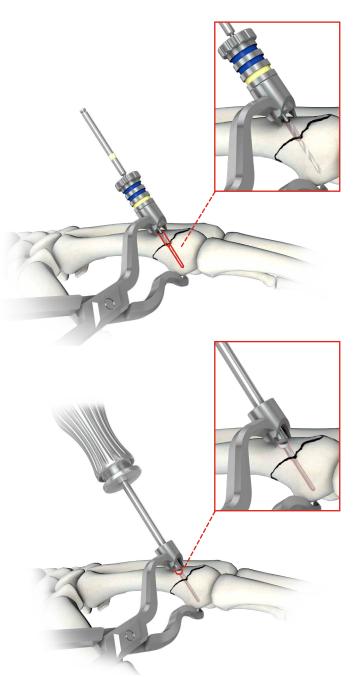
40.8467.660	1.2
40.8468.670	1.5
40.8470.670	2.0
40.8479.670	2.3

6.4. HOLE DEEPENING FOR THE SCREW'S HEAD

Remove the drill guide. Use guick coupling handle **[40.6405.300]** and countersink **[40.8478.000]** to deepen the hole for the screw's head.





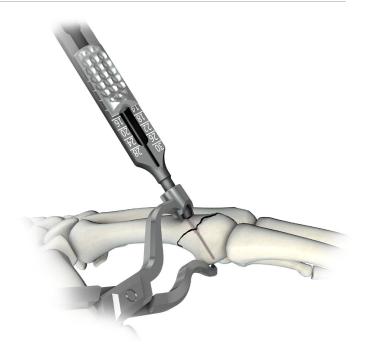


6.5. HOLE DEPTH MEASURE

Insert the depth measure **[40.4640.500]** into the drilled hole until the hook of the measure reaches the outer surface of the other cortex.

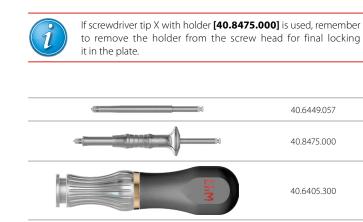


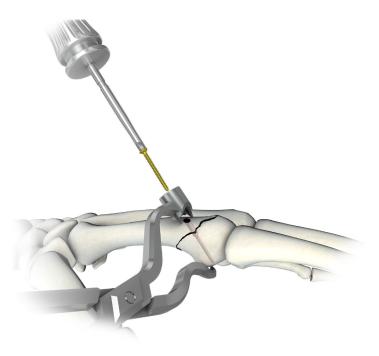
40.4640.500



6.6. SCREW INSERTION

Use quick coupling handle **[40.6405.300]** and screwdriver tip X **[40.6449.057]** or screwdriver tip X with holder **[40.8475.000]** to implant the screw.





6.7. WOUND CLOSURE

Before closing the wound, take an X-Ray image in at least two projections to confirm implants 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.

7. POSTOPERATIVE PROCEDURE

Introduce appropriate postoperative 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.

8. IMPLANT REMOVAL

The physician decides about implant removal. In order to remove the implants from the body, use quick coupling handle **[40.6405.300]** and screwdriver tip X **[40.6449.057]** to 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.



9. CATALOGUE PAGES

9.a. INSTRUMENT SET

Set for 3.0ChLP 4x4 H

Name	Catalogue No. Pcs
Instrument set for 3.0ChLP 4x4 1/2H	15.0203.201 1
Instrument set for 3.0ChLP 4x2 1/2H	15.0203.202 1
Instrument set for 3.0ChLP 4x2 1/2H	15.0203.203 1
3.0ChLP container lid 4x4H	14.0203.102 1
Container 3.0ChLP 4x4H	14.0203.101 1

Instrument set for 3.0ChLP 4x4 1/2H

	Name	Catalogue No.	Pcs
	Tray for 3.0ChLP instrument set 4x4 1/2H	14.0203.201	1
	Bending forceps for plates	40.8460.100	2
	Bone holding forceps 135mm	40.4150.000	1
	Bone holding forceps 90mm	40.4150.090	1
	Plate cutting pliers	40.8406.100	1
	Reduction forceps	40.8461.000	1
	Drill guide 0.9	40.8462.090	1
=8706	Drill guide 1.2	40.8462.120	1
	Drill guide 1.5	40.8462.150	1
	Drill guide 2.0	40.8462.200	1
	Drill guide 1.8	40.8462.180	1
	Drill guide 2.3	40.8462.230	1

Instrument set for 3.0ChLP 4x2 1/2H

	Name	Catalogue No.	Pcs
	Stand for instrument set for 3.0ChLP 4x2 1/2H	14.0203.202	1
	Drill guide 09/1.2	40.8463.000	1
	Drill guide 1.2/1.5	40.8464.000	1
	Drill guide 1.5/2.0	40.8465.000	1
	Drill guide 1.8/2.3	40.8466.000	1
	Drill 0.9/60	40.8467.660	1
	Drill 1.2/60	40.8468.660	1
	Drill 1.2/70	40.8468.670	1
	Drill 1.5/70	40.8469.670	1
	Drill 1.5/70	40.8470.670	1
	Drill 2.0/70	40.8471.670	1
Calculates (Drill 1.8/70	40.8479.670	1
	Drill 2.3/70	40.8472.670	1
명전정역적으	Depth measure	40.4640.500	1
	Countersink	40.8478.000	1
	Screwdriver tip X	40.6449.057	1
	Screwdriver tip X with holder	40.8475.000	1
	Quick coupling handle	40.6405.300	1

Instrument set for 3.0ChLP 4x2 1/2H

Name	Catalogue No.	Pcs
Stand for instrument set for 3.0ChLP 4x2 1/2H	14.0203.203	1
 Guide rod 0.8/150	40.8132.150	4
 Guide rod 1.0/150	40.8133.150	4
Guide rod 1.2/150	40.6466.150	4
Dissecting forceps delicate 10.5cm	30.3376.000	1
Elevator	40.4984.000	1
Elevator	40.4986.000	1
Hook	40.8477.000	1





Stand for plates 3.0ChLP 4x2 1/4H		14.0203.403
	00000	3.8010.006
	000000000000000000000000000000000000000	3.8010.012
Plate thickness 1.2mm	000000	3.8011.005
	00000 9	3.8012.005
	000000	3.8013.005
	00000	3.8014.005
	00000000	3.8015.007
	00000000	3.8016.007
	0000000	3.8017.007
- Stand does not include implants	0000000	3.8023.006

Stand for plates 3.0ChLP 4x2 1/4H		14.0203.404
	စ္မွိ၀၀၀၀၀၀စ္ရွိ	3.8018.007
Plate thickness 1.2mm		3.8019.004
		3.8020.004
	0-00	3.8021.003
		3.8022.003
	00	3.8024.002
	0000000	3.8024.008
Stand does not include implants	0000	3.8025.004



Stand for plates 3.0ChLP 4x2 1/4H		14.0203.405
	00000	3.8010.206
	000000000000000000000000000000000000000	3.8010.212
Plate thickness 0.8mm	8-00000	3.8011.205
	0=000©Q	3.8012.205
	0 0000 0	3.8013.205
	0=000©Q	3.8014.205
	000000C	3.8015.207
	ଟ୍ର ୍ଚ୍ଚ୍ଚ୍ଚ୍ର୍ର୍	3.8016.207
	0000000	3.8017.207
Stand does not include implants	30000 00	3.8023.206

Stand for plates 3.0ChLP 4x2 1/4H		14.0203.406
Plate thickness 0.8mm	စ္မိ၀၀၀၀၀၀၀ဝွိ	3.8018.207
0.8mm	28-38	3.8019.204
	28-88	3.8020.204
	335	3.8021.203
	88	3.8022.203
	28	3.8024.202
	20000000	3.8024.208
Stand does not include implants		3.8025.204

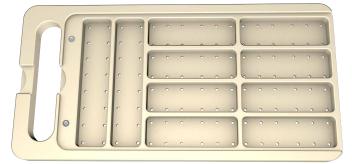


STAND FOR PLATES - UNIVERSAL

Stand for plates 3,0ChLP 4x2 1/4H	(with cover)	14.0203.401
* Stand does not include implants		

Stand for plates 3,0ChLP 4x2 1/4H

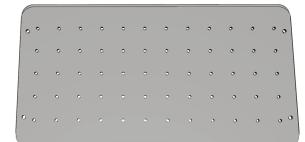
(without cover)



* Stand does not include implants

Cover 4x2

14.0000.301

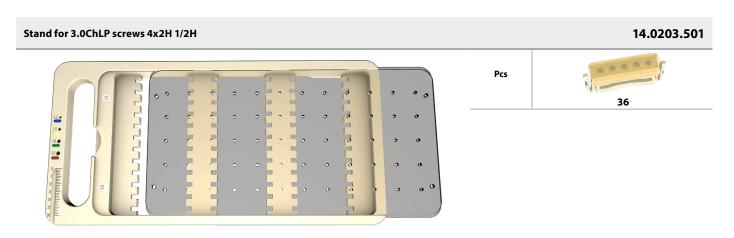




ARRANGEMENT EXAMPLE



9.c. STAND FOR SCREWS



Stand does not include implants

Max screw length 20mm

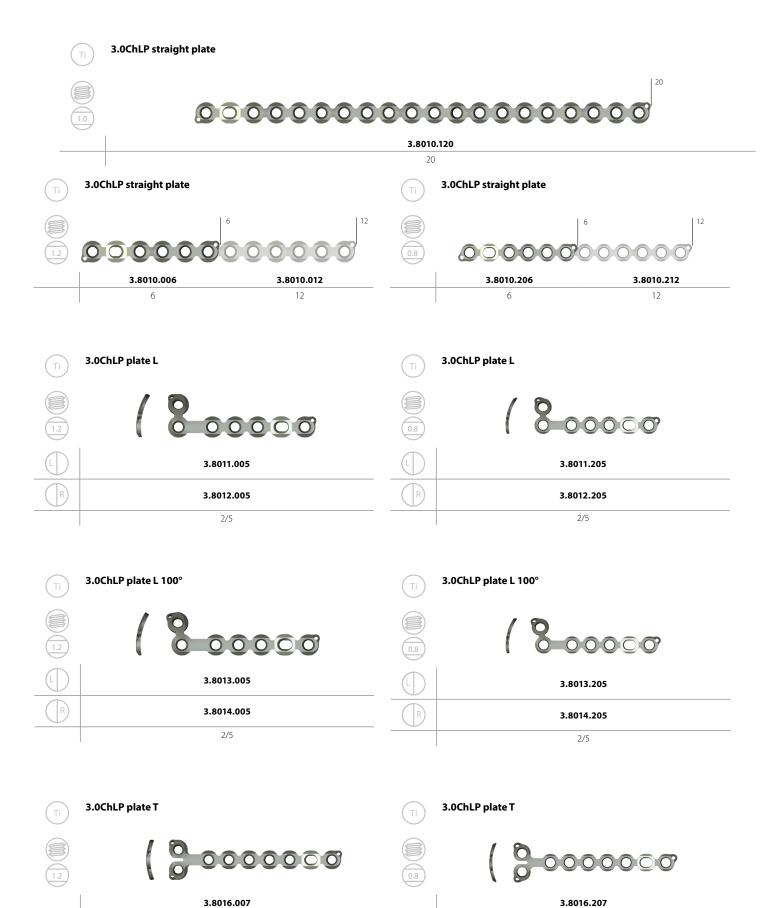


ARRANGEMENT EXAMPLE



9.d. PLATES

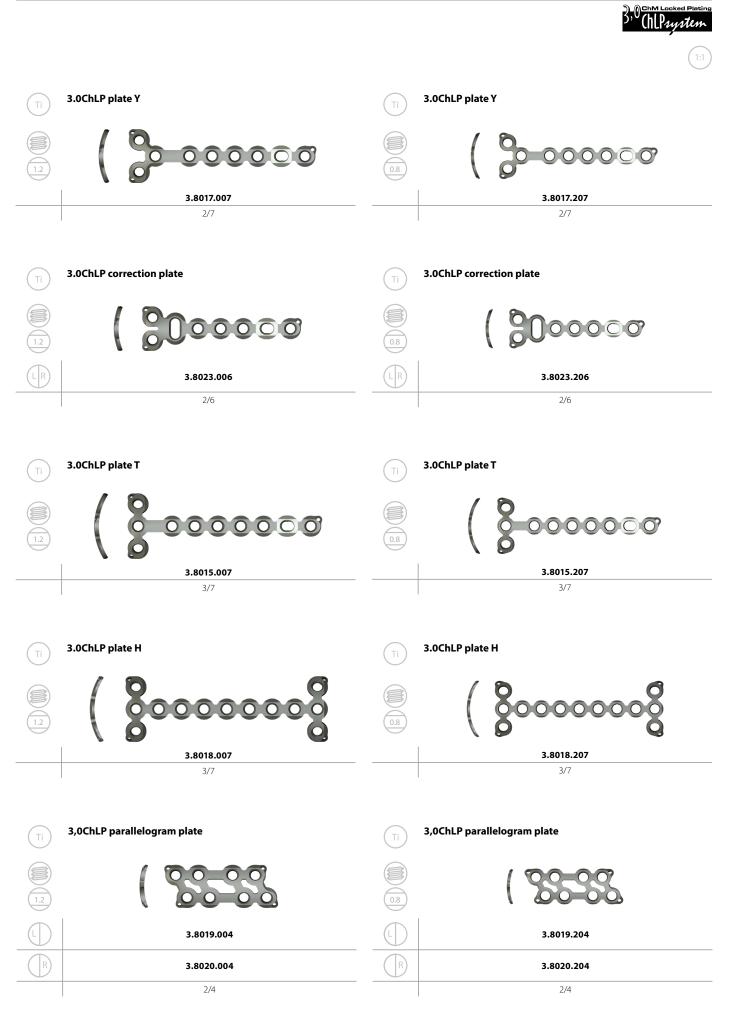
3, Chelpsystem



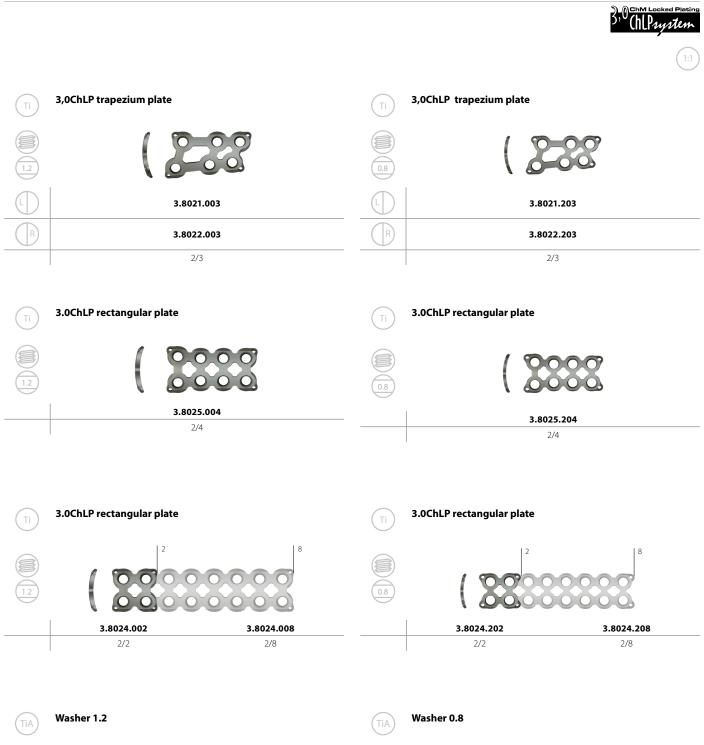
2/7

2/7

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.8	0
	3.1951.016
Ð	4,5
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9.e. SCREWS



3.0ChLP screw VA 2.0

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Len	TIA
6	3.8001.606
7	3.8001.607
8	3.8001.608
9	3.8001.609
10	3.8001.610
11	3.8001.611
12	3.8001.612
13	3.8001.613
14	3.8001.614
15	3.8001.615
16	3.8001.616
17	3.8001.617
18	3.8001.618
19	3.8001.619
20	3.8001.620
22*	3.8001.622
24*	3.8001.624
26*	3.8001.626
28*	3.8001.628
30*	3.8001.630
Pcs	00000



* Additionally Available

3.0ChLP screw VA 1.5

Len	TIA
6	3.8000.606
7	3.8000.607
8	3.8000.608
9	3.8000.609
10	3.8000.610
11	3.8000.611
12	3.8000.612
13	3.8000.613
14	3.8000.614
15	3.8000.615
16	3.8000.616
17	3.8000.617
18	3.8000.618
19	3.8000.619
20	3.8000.620
Pcs	5

3.0ChLP screw VA 2.3

Len	TIA
6	3.8002.606
7	3.8002.607
8	3.8002.608
9	3.8002.609
10	3.8002.610
11	3.8002.611
12	3.8002.612
13	3.8002.613
14	3.8002.614
15	3.8002.615
16	3.8002.616
17	3.8002.617
18	3.8002.618
19	3.8002.619
20	3.8002.620
22*	3.8002.622
24*	3.8002.624
26 *	3.8002.626
28*	3.8002.628
30*	3.8002.630
Pcs	5
* Addition	nally Available





3.0ChLP screw 1.5

Len	TIA
6	3.8004.606
7	3.8004.607
8	3.8004.608
9	3.8004.609
10	3.8004.610
11	3.8004.611
12	3.8004.612
13	3.8004.613
14	3.8004.614
15	3.8004.615
16	3.8004.616
17	3.8004.617
18	3.8004.618
19	3.8004.619
20	3.8004.620
Pcs	5

3.0ChLP screw 1.2

Len	TIA TIA
5*	3.8003.605
6	3.8003.606
7	3.8003.607
8	3.8003.608
9	3.8003.609
10	3.8003.610
11*	3.8003.611
12*	3.8003.612
13 米	3.8003.613
14 米	3.8003.614
15*	3.8003.615
Pcs	5
ا Additior	ally Available

3.0ChLP screw 2.0

Len	(TIA)
6	3.8005.606
7	3.8005.607
8	3.8005.608
9	3.8005.609
10	3.8005.610
11	3.8005.611
12	3.8005.612
13	3.8005.613
14	3.8005.614
15	3.8005.615
16	3.8005.616
17	3.8005.617
18	3.8005.618
19	3.8005.619
20	3.8005.620
22*	3.8005.622
24*	3.8005.624
26*	3.8005.626
28*	3.8005.628
30*	3.8005.630
Pcs	5
* Addition	nally Available



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Len	(TiA)
6	3.8006.606
7	3.8006.607
8	3.8006.608
9	3.8006.609
10	3.8006.610
11	3.8006.611
12	3.8006.612
13	3.8006.613
14	3.8006.614
15	3.8006.615
16	3.8006.616
17	3.8006.617
18	3.8006.618
19	3.8006.619
20	3.8006.620
22*	3.8006.622
24*	3.8006.624
26*	3.8006.626
28*	3.8006.628
30*	3.8006.630
Pcs	5
* Addition	nally Available

3.0ChLP screw 2.3

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