ST/80-703

ChM®

7,0 ChM Locked Plating ChLP system

7.0ChLP femoral periprosthetic plate

3.7220; 3.7221;
3.7222; 3.7223;
3.7224; 3.7225;
3.7276; 3.7277

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

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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

1. introduction

This surgical technique applies to 7.0ChLP locked plating system used for stabilization of proximal femur fractures. 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

- trochanteric osteotomies,
- trochanteric fractures,
- periprosthetic femur fractures.

Plate selection and shaping

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

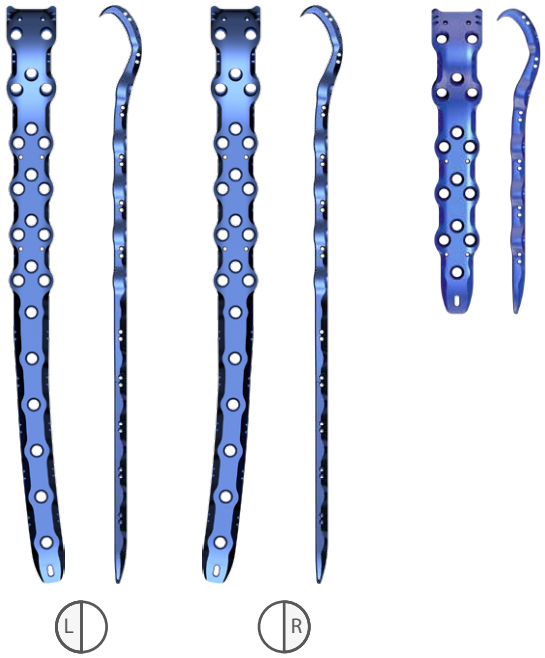
The above description is not a detailed instruction of conduct. The surgeon decides about choosing the operating procedure.

2. IMPLANT DESCRIPTION

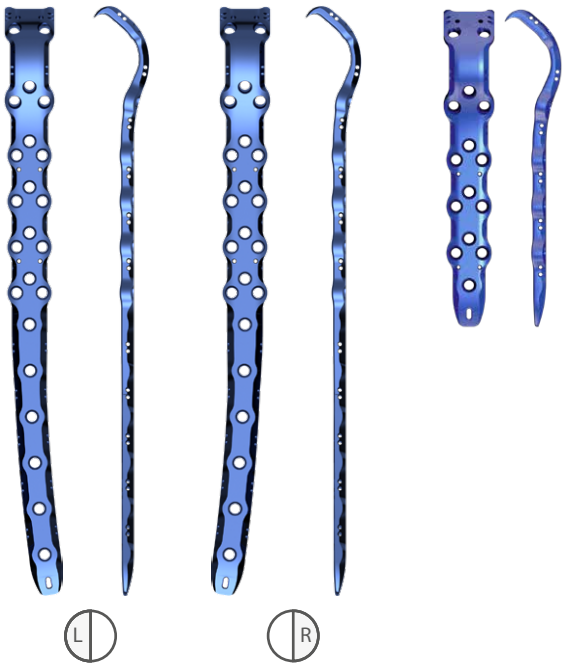
Femoral periprosthetic plates are a part of 7.0ChLP system. This system includes also compatible locking screws. To facilitate their identification, both titanium plate and screws are blue anodized.

Proximal hook plates

Short epiphysis



Long epiphysis

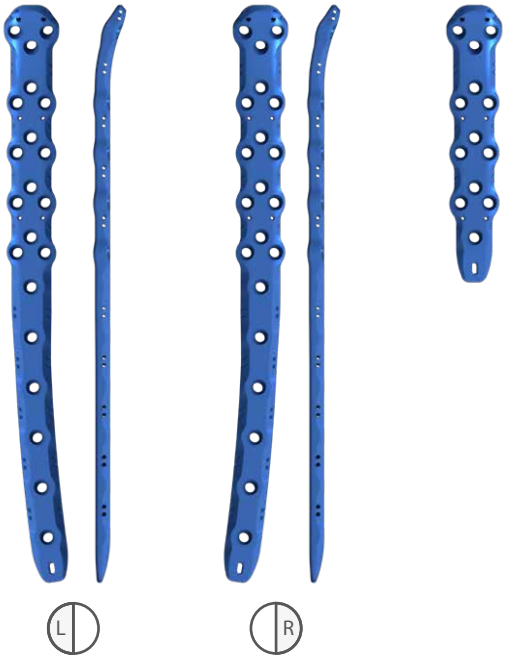


Trochanteric plates

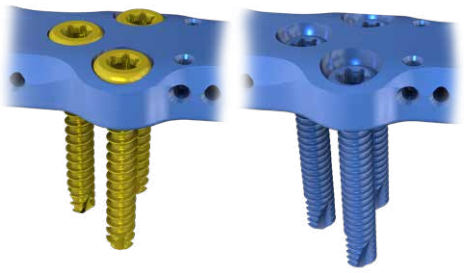
Short epiphysis

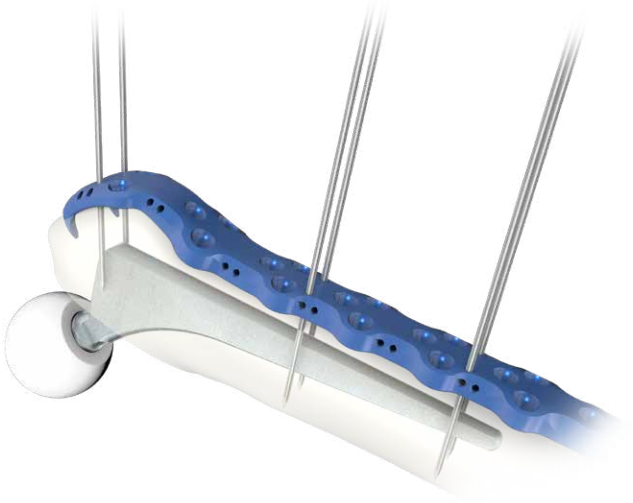
Long epiphysis

Proximal subtrochanteric plates



7.0ChLP femoral periprosthetic plate





New locking hole design:
- the screws heads do not protrude above the surface of the plate what significantly reduces the irritation of periimplant tissues,
- cortical screws use possible.

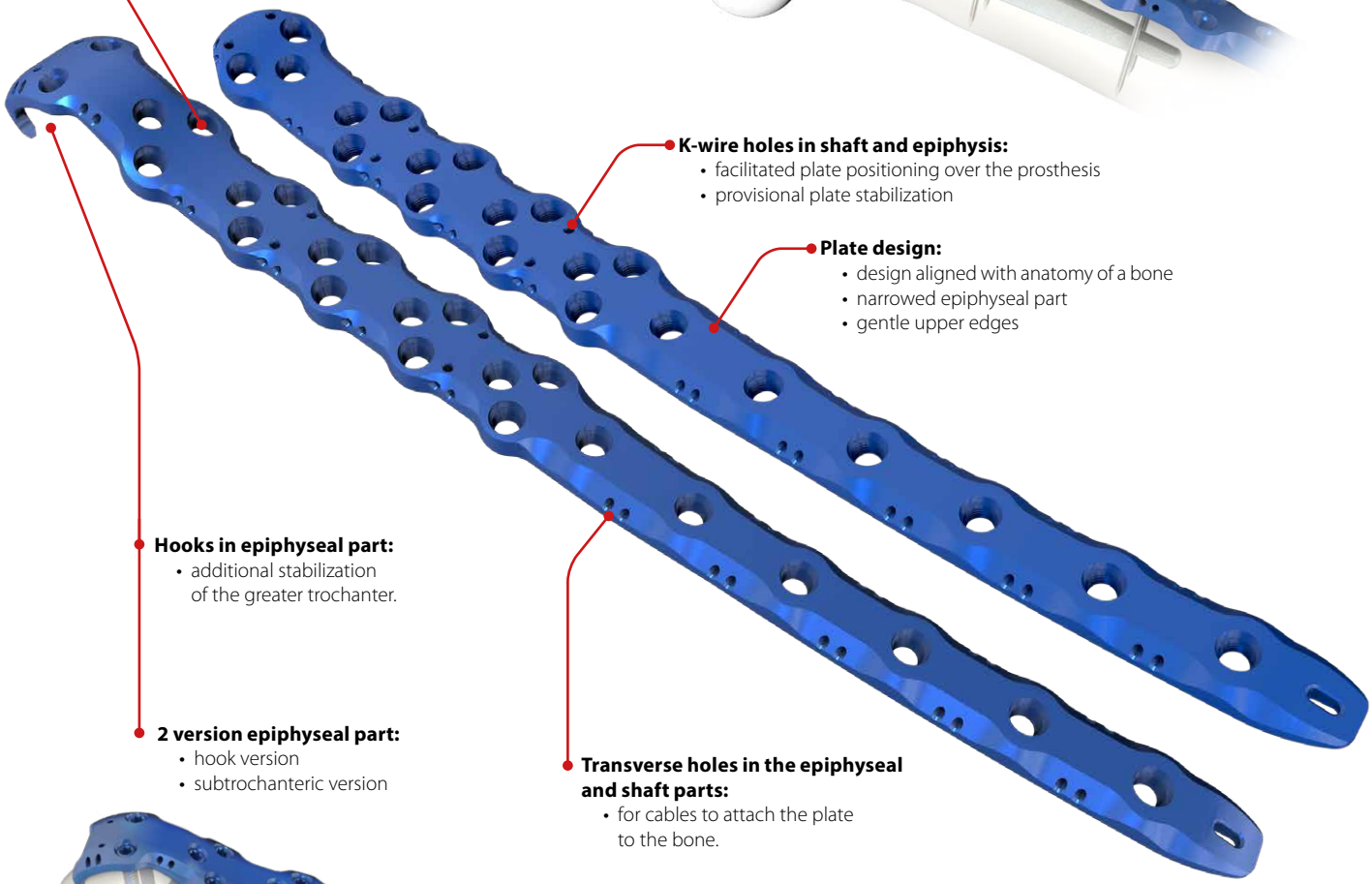
K-wire holes in shaft and epiphysis:
- facilitated plate positioning over the prosthesis
- provisional plate stabilization

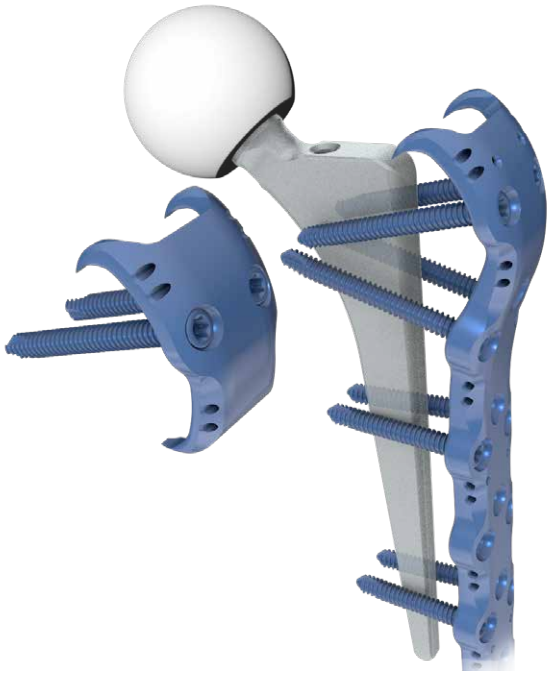
Plate design:
- design aligned with anatomy of a bone
- narrowed epiphyseal part
- gentle upper edges

Hooks in epiphyseal part:
- additional stabilization of the greater trochanter.

2 version epiphyseal part:
- hook version
- subtrochanteric version

Transverse holes in the epiphyseal and shaft parts:
- for cables to attach the plate to the bone.

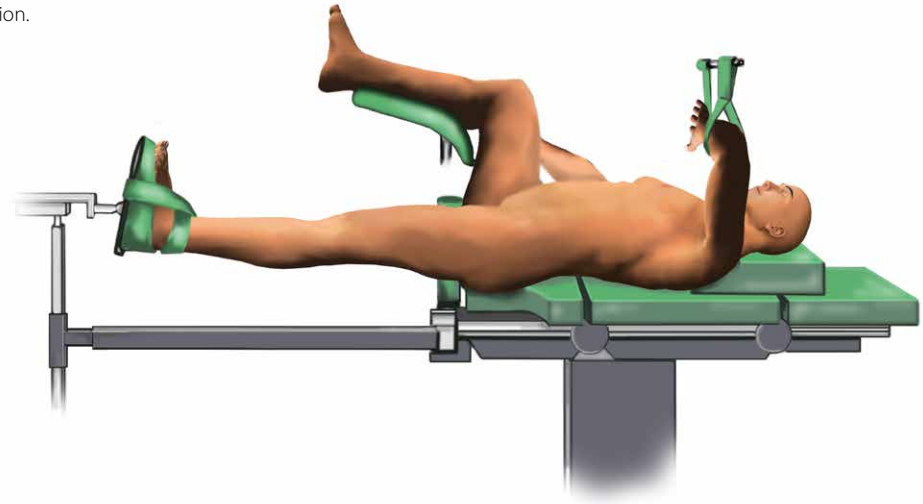




3. SURGICAL TECHNIQUE - 7.0ChLP femoral periprosthetic plate

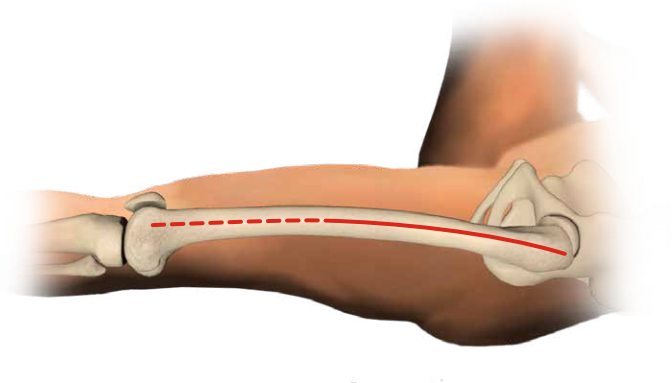
3.1. PATIENT'S POSITIONING

Place a patient supine. Ensure lateral and AP visualization.



3.2. SURGICAL APPROACH

Lateral access. Perform a more or less extensive incision of the skin *(depending on the implant used)*. The incision shall start from the top of the greater trochanter to the lateral condyle of the femur.



3.3. FRACTURE REDUCTION

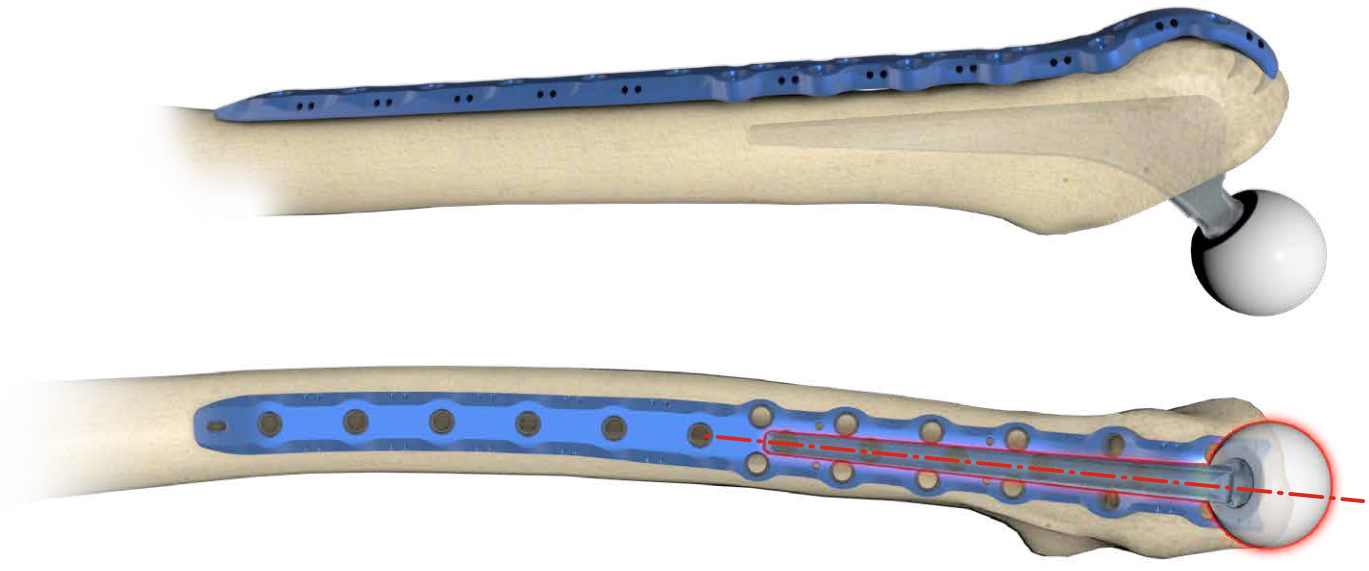
Perform fracture reduction. If need be, temporarily stabilize the bone fragments with Kirschner wires and/or reduction pliers.

3.4. Implant selection

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

3.5. PLATE INSERTION

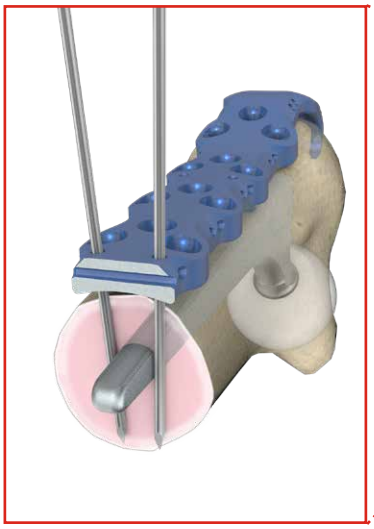
Position the implant correctly on the bone.

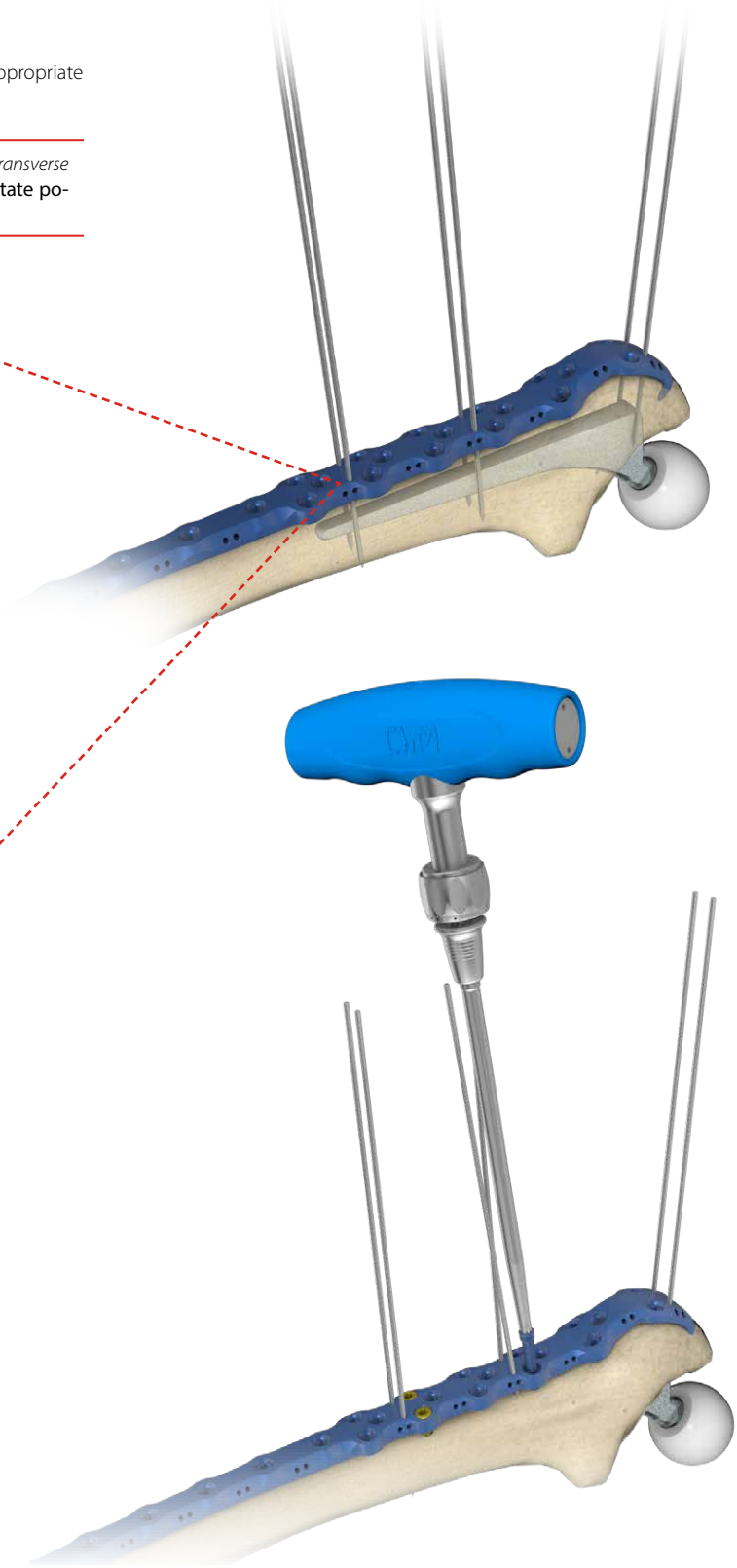


3.6. TEMPORARY PLATE STABILIZATION

Stabilize the position of the implant inserting Kirschner wires into appropriate holes *(acc. to procedure 4a)*.

The Kirschner wires in the epiphyseal part indicate *(in the transverse view)* the plane of the screws to be inserted. They facilitate positioning of the plate over the prosthesis.





3.7. SCREWS INSERTION

Insert screws of a suitable length into the holes of the plate.

- Cortical self-tapping screw 4.5 **[3.1471]** *(acc. to procedure 4b)*.
- 7.0ChLP self-tapping screw 5.0 **[3.5210]** *(acc. to procedure 4c)*.
- 7.0ChLP periprosthetic screw 5,0 **[3.5247]** *(acc. to procedure 4d)*.
- 7.0ChLP screw VA 4.0 **[4.5246]** *(acc. to procedure 4e)*.
- 7.0ChLP screw VA 5.0 **[4.5244]** *(acc. to procedure 4f)*.

Insert the cortical screws 4.5 into a bone fragment before inserting the locking screws.

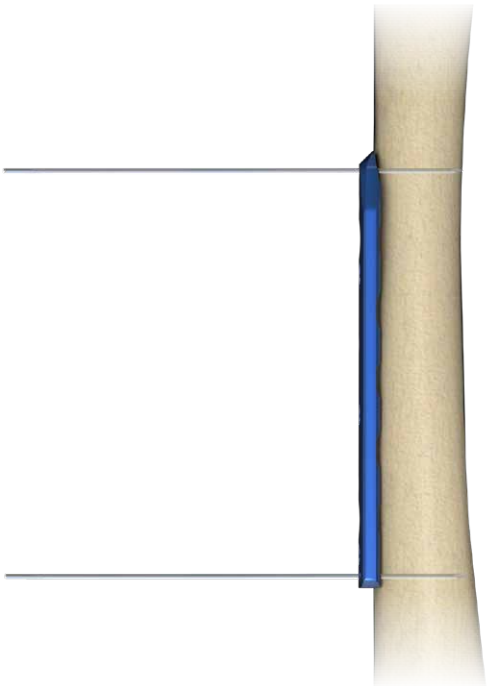
The doctor decides about the order and number of locking and cortical screws to be inserted.

3.8. 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

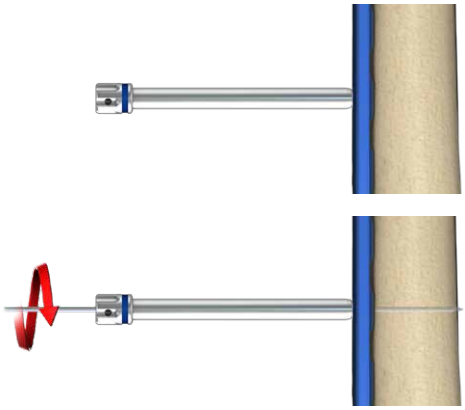
4a. PROCEDURE OF TEMPORARY IMPLANT STABILIZATION



Stabilization using Kirschner wires

- Stabilize temporary the implant inserting Kirschner wires 2.0/210 **[40.4815.210]** into dedicated holes in the plate.

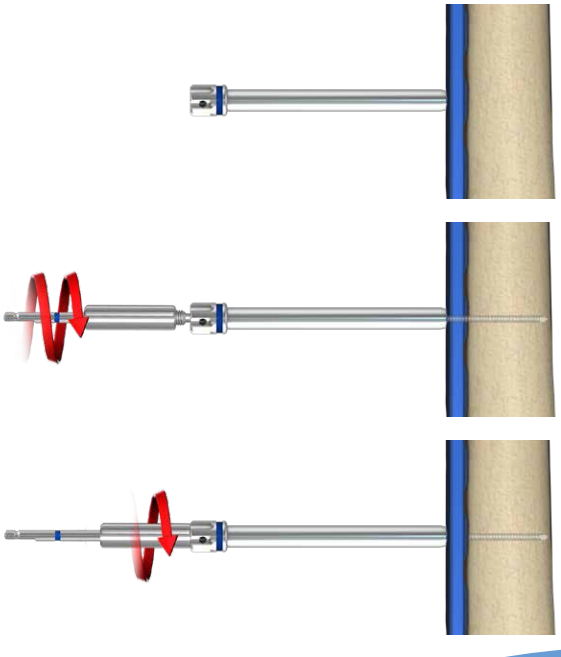
	40.4815.210



Stabilization in locking holes using Kirschner wires

- Insert guide sleeve 7.0/4.0 **[40.5705.740]** into the locking hole of the plate.
- Insert Kirschner wire **[40.4815.210]** through the guide sleeve 7.0/4.0 **[40.5705.740]**.

	40.5705.740
	40.4815.210



Stabilization using setting-compressing screw

- Insert guide sleeve 7.0/4.0 **[40.5705.740]** into the locking hole of the plate.
- Insert setting-compressing screw 4.0/180 **[40.5706.740]** through the guide sleeve 7.0/4.0 **[40.5705.740]**.
- Tighten the nut of the setting-compressing screw 4.0/180 **[40.5706.740]** and push the plate to the bone.

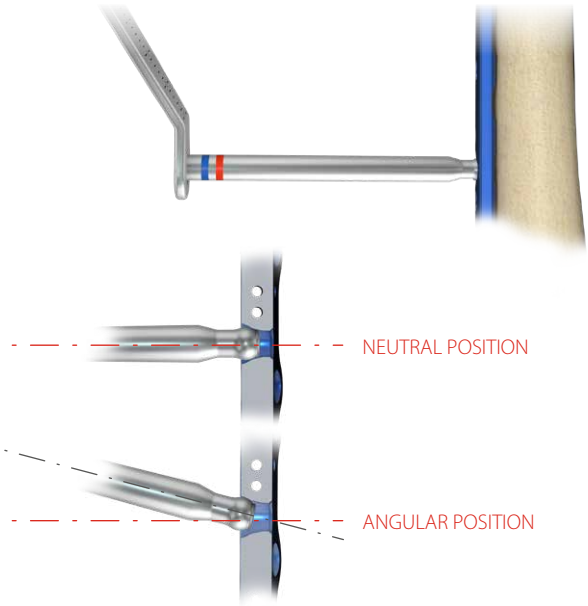
	40.5705.740
	40.5706.740

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

Compression guide positioning

Position the compression guide VA 4.0 **[40.8207.040]** in a desired position:

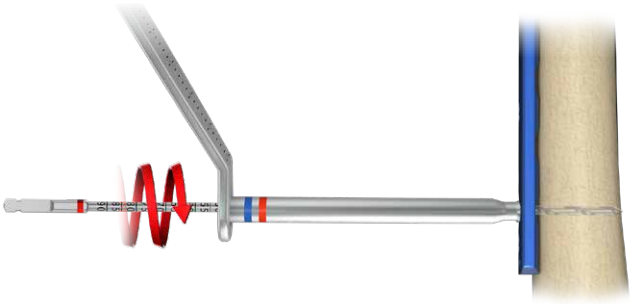
40.8207.040



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.

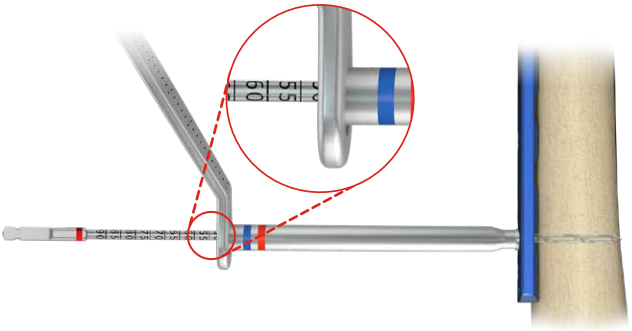
40.5650.212



Measurement of hole depth

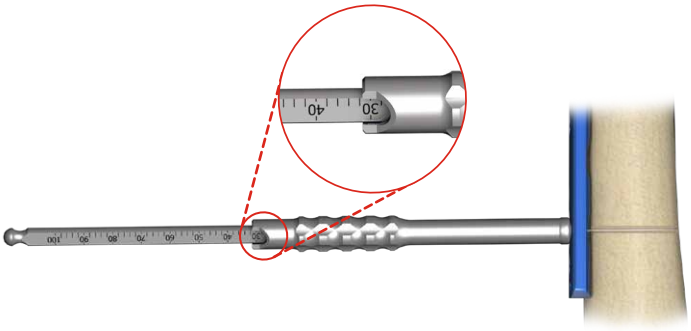
OPTION I: Determine the lenght of the screw using the scale on the drill with scale 3,2/210 **[40.5650.212]**.

40.5650.212



OPTION II: Insert depth measure **[40.4639.550]**] into drilled hole until the hook of the measure rests against the outer surface of the second cortex.

40.4639.550

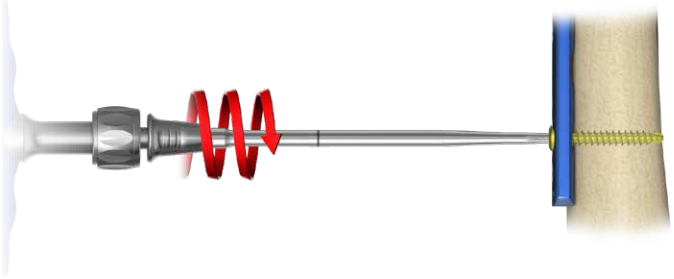


Screw insertion

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

40.6660.000

40.5684.200

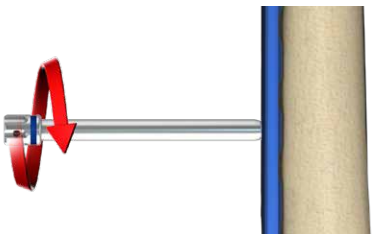


4c. PROCEDURE OF 7.0ChLP SELF-TAPPING SCREW 5.0 **[3.5210]** INSERTION

Guide sleeve insertion

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

40.5705.740



Hole drilling

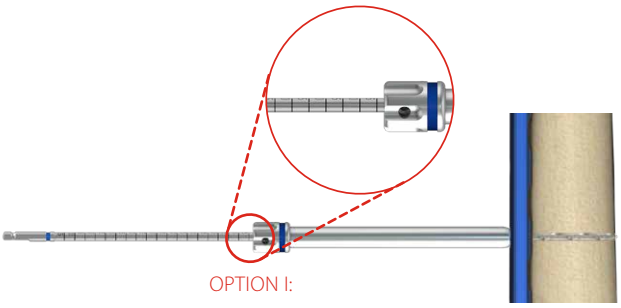
Drill using drill with a scale 4.0/210 **[40.5651.212]** until desired depth is reached.

40.5651.212

Measurement of hole depth

OPTION I: Determine the lenght of the screw using the scale on the drill with scale 4.0/210 **[40.5651.212]**.

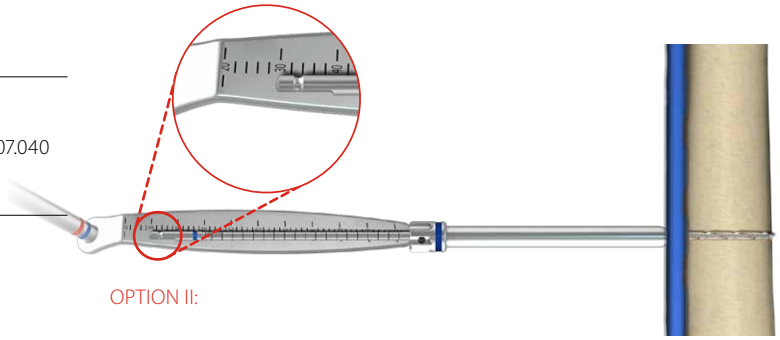
40.5651.212



OPTION I:

OPTION II: or using measure on VA 4.0 guide.

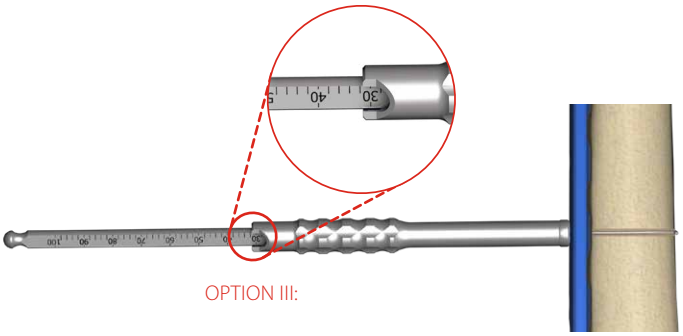
40.8207.040



OPTION II:

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

40.4639.550



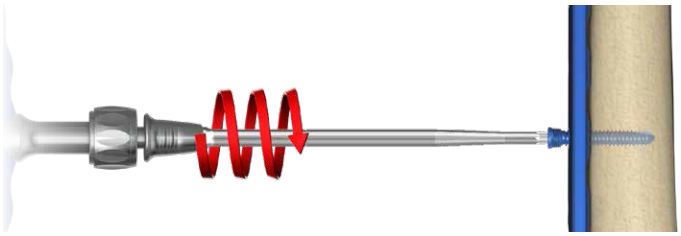
OPTION III:

Screw insertion

Remove guide sleeve 7.0/4.0 **[40.5705.740]**. Insert locking screw using torque limiting ratchet T handle 4Nm **[40.6660.000]** and screwdriver tip T25 **[40.5684.000]**.

40.6660.000

40.5684.200

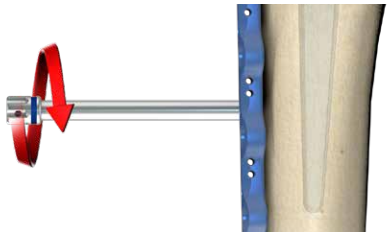


4d. PROCEDURE OF 7.0ChLP PERIPROSTHETIC SCREW 5.0 [3.5247] INSERTION

Guide sleeve insertion

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


40.5705.740



Hole drilling

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

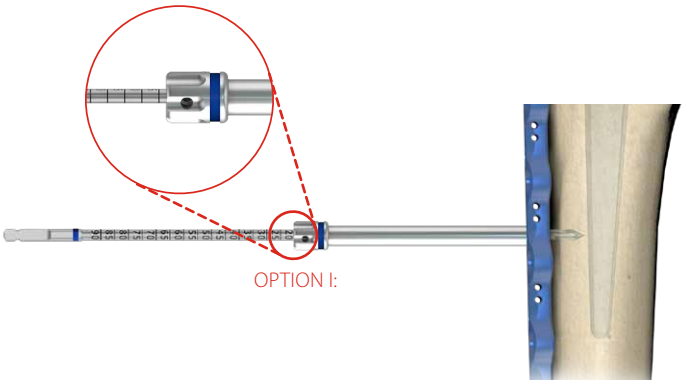
40.5651.212


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

Measurement of hole depth

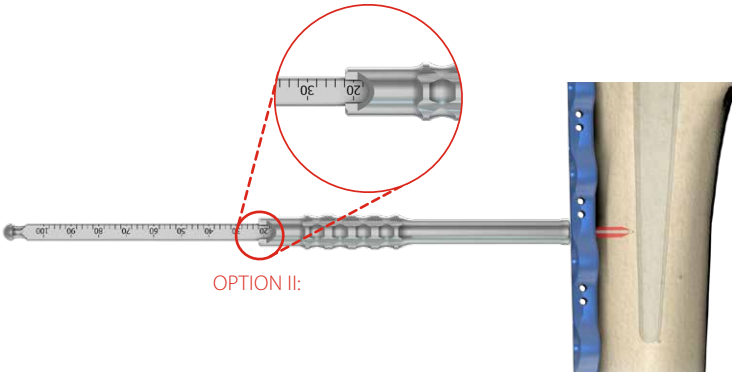
OPTION I: Determine the lenght of the screw using the scale on the drill with scale 4.0/210 **[40.5651.212]**.

40.5651.212



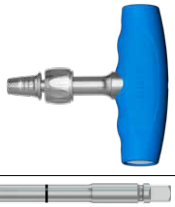
OPTION II: Having removed the guide sleeve 7.0/4.0 **[40.5705.740]**, use depth measure **[40.4639.550]** to determine the lenght of the screw.


40.4639.550

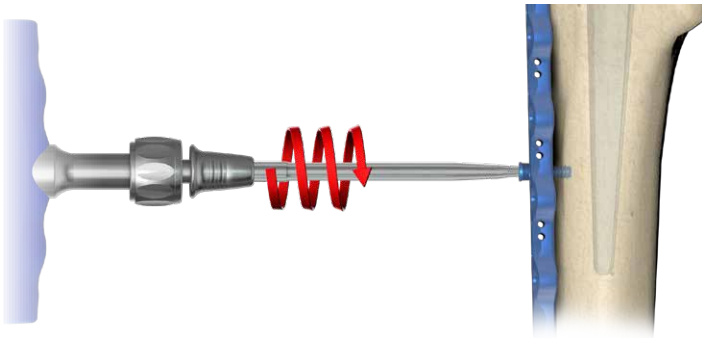


Screw insertion

Remove guide sleeve 7.0/4.0 **[40.5705.740]**. Insert locking screw using torque limiting ratchet T handle 4Nm **[40.6660.000]** and screwdriver tip T25 **[40.5684.000]**.


40.6660.000


40.5684.200



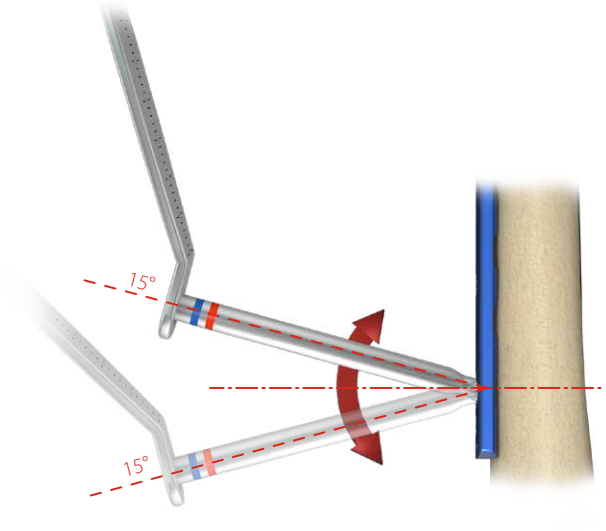
4e. PROCEDURE OF 7.0ChLP SCREW VA 4.0 **[4.5246]** INSERTION

When using variable angle *(VA)* screws, there is a risk of collision of screws or a drill with already implanted screws.
Well-thought-out trajectory of inserted screws and intraoperative X-Ray control of drilling reduces the risk of the collision.

Guide VA positioning

- Insert the guide VA 4,0 **[40.8207.040]** na pełną głębokość w osi otworu blokowanego. 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.

40.8207.040

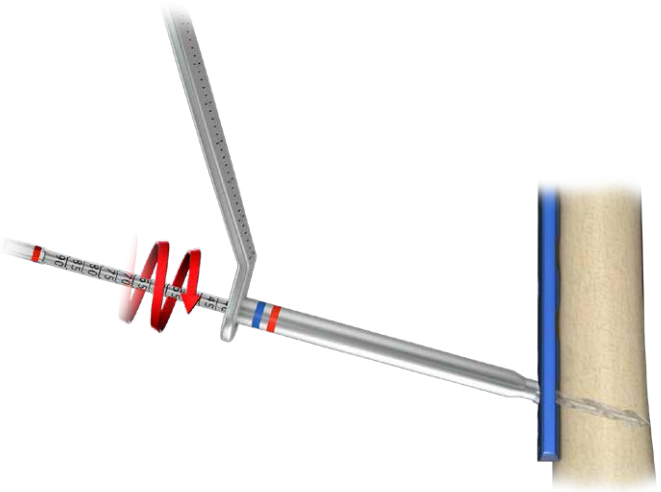


Exceeding the inclination angle of more than 15° may prevent proper locking of the VA screw in the plate hole.

Hole drilling

- Drill using drill with scale 3,2/210 **[40.5650.212]** until desired depth is reached.

40.5650.212

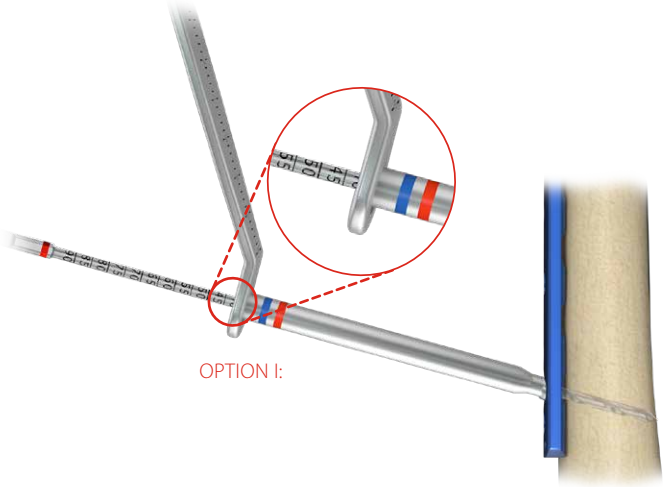


Drill under X-Ray control to avoid a collision of the drill with already implanted screws.

Measurement of hole depth

OPTION I: Read the length of the screw from the drill measure **[40.5650.212]**

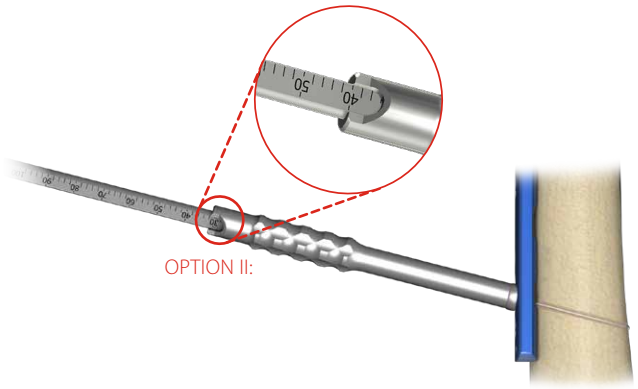
40.5650.212



OPTION I:

OPTION II: Having removed the guide VA, use depth measure **[40.4639.550]** to determine the length of the screw.

40.4639.550

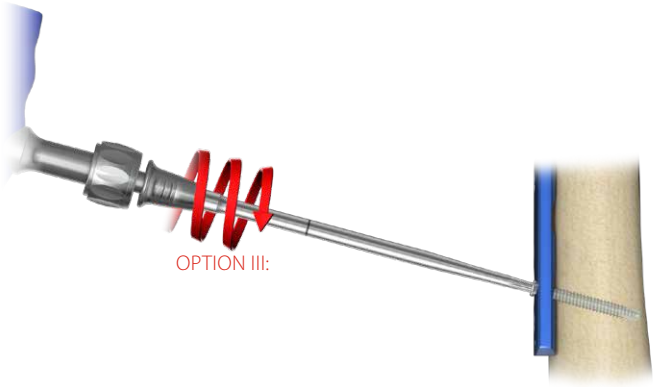


Screw insertion

Use torque limiting ratchet handle 4Nm **[40.6660.000]** and screwdriver tip T25 **[40.5684.200]** to insert the VA screw.

40.6660.000

40.5684.200



Change of the VA screw positioning
It is possible to lock the VA screw three times in the threaded hole of the plate.
The hole in the plate in which the VA screw was locked cannot be used to insert a standard locking screw.

4f. PROCEDURE OF 7.0ChLP SCREW VA 5.0 [4.5244] INSERTION

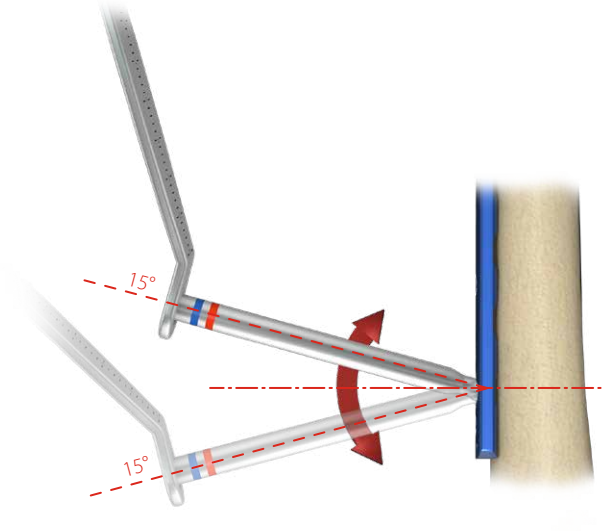
When using variable angle *(VA)* screws, there is a risk of collision of screws or a drill with already implanted screws.
Well-thought-out trajectory of inserted screws and intraoperative X-Ray control of drilling reduces the risk of the collision.

Guide VA positioning

- Insert the guide VA 4,0 **[40.8207.040]** 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.

40.8207.040

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

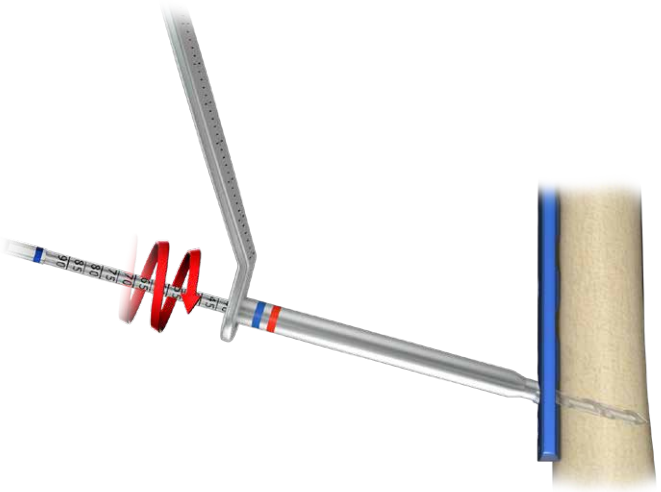


Hole drilling

- Drill using drill with scale 4,0/210 **[40.5651.212]** until desired depth is reached.

40.5651.212

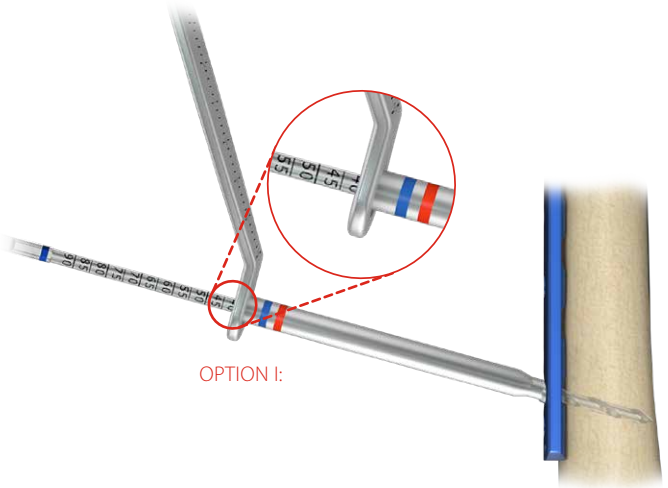
Drill under X-Ray control to avoid a collision of the drill with already implanted screws.



Measurement of hole depth

WARIANT I: Read the length of the screw from the drill measure 4,0/210 **[40.5651.212]**

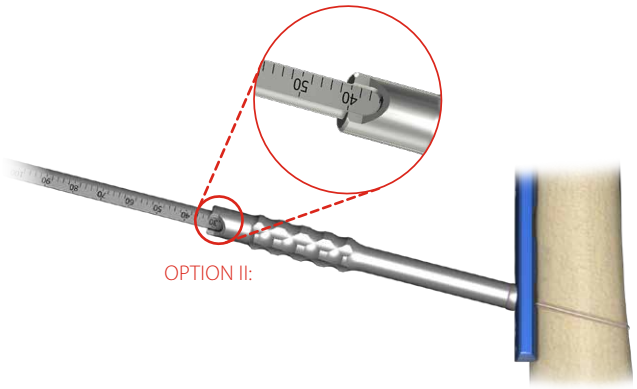
40.5651.212



OPTION I:

WARIANT II: Having removed the guide VA, use depth measure **[40.4639.550]** to determine the length of the screw.

40.4639.550



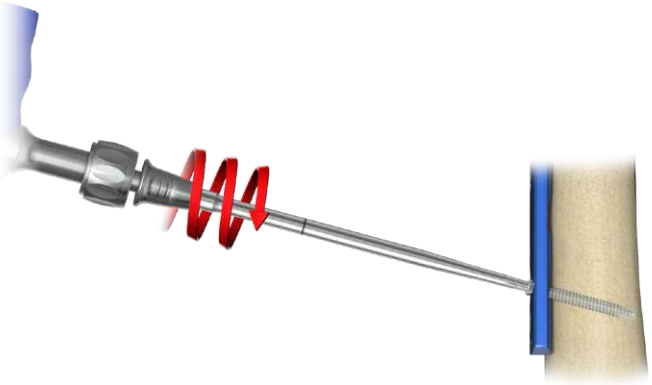
OPTION II:

Screw insertion

Use torque limiting ratchet handle 4Nm **[40.6660.000]** and screwdriver tip T25 **[40.5684.200]** to insert the VA screw.

40.6660.000

40.5684.200



Change of the VA screw positioning
It is possible to lock the VA screw three times in the threaded hole of the plate.
The hole in the plate in which the VA screw was locked cannot be used to insert a standard locking screw.

5. 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.

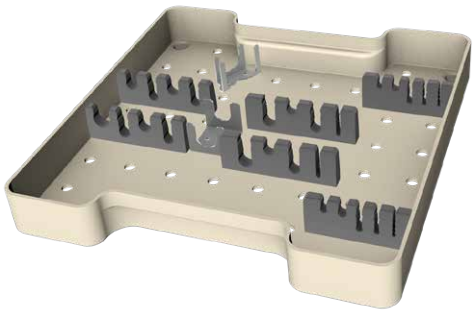
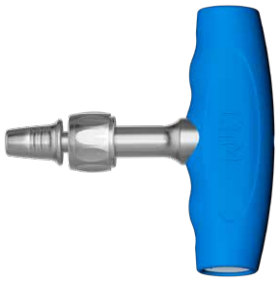
6. IMPLANT REMOVAL

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

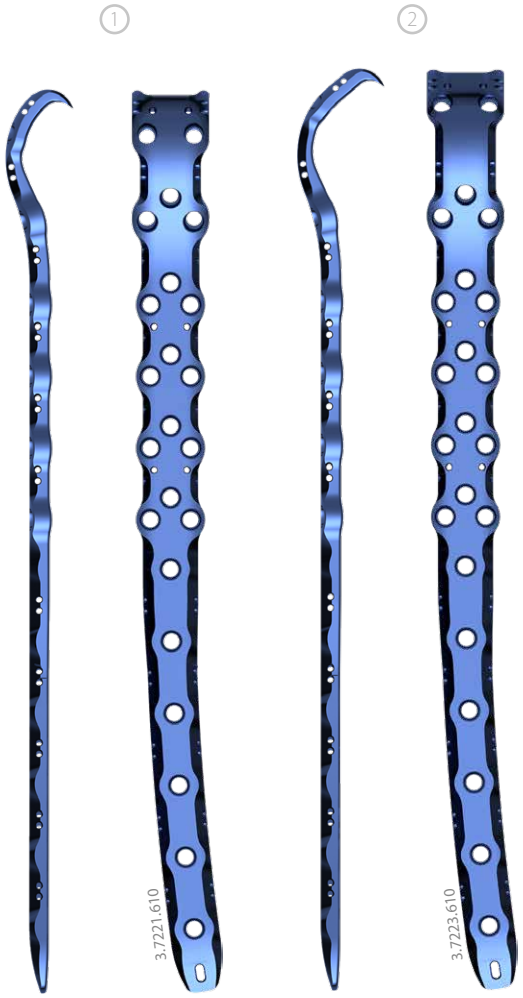
Instrument set for 7.0ChLP 4x4 1/2H **15.0207.208**

	Name	Catalogue no.	Pcs.
	Tray for 7.0ChLP instrument set 4x4 1/2H	14.0207.208	1
	Kirschner wire 2.0/210	40.4815.210	4
	Drill with scale 3.2/210	40.5650.212	2
	Drill with scale 4.0/210	40.5651.212	2
	Cannulated drill with scale 5.0/2.2/210	40.5652.212	1
	Setting-compressing screw 4.0/180	40.5706.740	1
	Guide VA 4.0	40.8207.040	1
	Guide sleeve 7.0/4.0	40.5705.740	3
	Guide sleeve 7.0/3.2	40.5705.732	2
	Guide sleeve 9/5.0	40.5654.750	1
	Guide sleeve 5.0/2.0	40.5654.120	1
	Protective guide 9/7	40.5708.000	2
	Torque limiting ratchet handle T 4Nm	40.6660.000	1
	Screwdriver tip T25-1/4	40.5684.200	1
	Cannulated screwdriver tip T30-1/4	40.5685.200	1
	Depth measure	40.4639.550	1
	Optional instrument		
	Torque connector 4Nm	40.5927.040	

OPTIONAL TOOLS

Optional instrument 7.0ChLP cerclage screws 3.1221.170		
	Tripod screwdriver tip 7.0ChLP	**40.6271.700**

7.0ChLP femoral periprosthetic plate

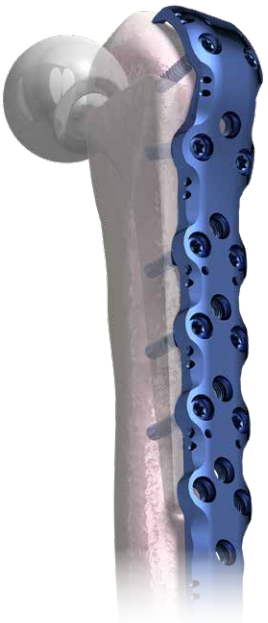


SHORT

1	Len	Ti L	Ti R
6	222	3.7221.606	3.7220.606
8	274	3.7221.608	3.7220.608
10	326	3.7221.610	3.7220.610
12	378	3.7221.612	3.7220.612

LONG

2			
6	229	3.7223.606	3.7222.606
8	281	3.7223.608	3.7222.608
10	333	3.7223.610	3.7222.610
12	384	3.7223.612	3.7222.612



	TiA	Co			VA		
	3.5210.xxx		✓	✓		✓	5.0
	3.5247.xxx		✓	✓		✓	5.0
	3.1471.xxx		✓			✓	4.5
		4.5244.xxx	✓	✓	✓	✓	5.0
		4.5246.xxx	✓	✓	✓	✓	4.0
	3.1221.170			✓			

7.0ChLP trochanteric periprosthetic plate

SHORT

1	Len	Ti L R
4	169	3.7276.604

LONG

2		
4	176	3.7277.604

	TiA	Co			VA		
	3.5210.xxx		✓	✓		✓	5.0
	3.5247.xxx		✓	✓		✓	5.0
	3.1471.xxx		✓			✓	4.5
		4.5244.xxx	✓	✓	✓	✓	5.0
		4.5246.xxx	✓	✓	✓	✓	4.0
	3.1221.170			✓			

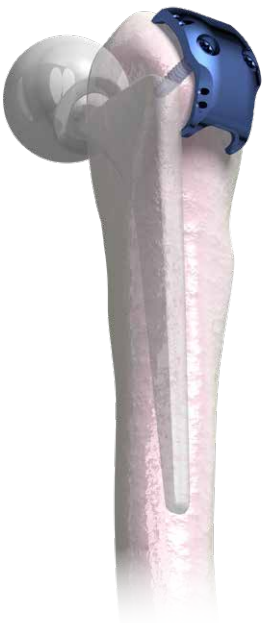
7.0ChLP trochanteric periprosthetic plate

SHORT

1	Len	Ti L R
2	42	3.7224.600

LONG

2		
2	50	3.7225.600



	TiA	Co			VA		
	3.5210.xxx		✓	✓		✓	5.0
	3.5247.xxx		✓	✓		✓	5.0
	3.1471.xxx		✓			✓	4.5
		4.5244.xxx	✓	✓	✓	✓	5.0
		4.5246.xxx	✓	✓	✓	✓	4.0
	3.1221.170			✓			

7.0ChLP femoral periprosthetic plate

		Ti	
	Len	L	R
6	196	3.7273.606	3.7274.606
8	248	3.7273.608	3.7274.608
10	300	3.7273.610	3.7274.610
12	352	3.7273.612	3.7274.612

	TiA	Co			VA		
	3.5210.xxx		✓	✓		✓	5.0
	3.5247.xxx		✓	✓		✓	5.0
	3.1471.xxx		✓			✓	4.5
		4.5244.xxx	✓	✓	✓	✓	5.0
		4.5246.xxx	✓	✓	✓	✓	4.0
	3.1221.170			✓			

7.0ChLP femoral periprosthetic plate

	Len	Ti L R
4	143	3.7275.604

	TiA	Co			VA		
	3.5210.xxx		✓	✓		✓	5.0
	3.5247.xxx		✓	✓		✓	5.0
	3.1471.xxx		✓			✓	4.5
		4.5244.xxx	✓	✓	✓	✓	5.0
		4.5246.xxx	✓	✓	✓	✓	4.0
	3.1221.170			✓			

7.0ChLP self-tapping screw 5.0

Len	TiA
16	3.5210.016
18	3.5210.018
20	3.5210.020
22	3.5210.022
24	3.5210.024
26	3.5210.026
28	3.5210.028
30	3.5210.030
32	3.5210.032
34	3.5210.034
36	3.5210.036
38	3.5210.038
40	3.5210.040
42	3.5210.042
44	3.5210.044
46	3.5210.046
48	3.5210.048
50	3.5210.050
52	3.5210.052
54	3.5210.054
56	3.5210.056
58	3.5210.058
60	3.5210.060
65	3.5210.065
70	3.5210.070
75	3.5210.075
80	3.5210.080
85	3.5210.085
90	3.5210.090
95	3.5210.095
100	3.5210.100
105	3.5210.105
110	3.5210.110

Cortical self-tapping screw 4.5

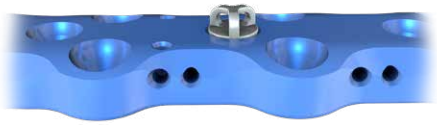
Len	TiA
16	3.1471.016
18	3.1471.018
20	3.1471.020
22	3.1471.022
24	3.1471.024
26	3.1471.026
28	3.1471.028
30	3.1471.030
32	3.1471.032
34	3.1471.034
36	3.1471.036
38	3.1471.038
40	3.1471.040
42	3.1471.042
44	3.1471.044
46	3.1471.046
48	3.1471.048
50	3.1471.050
52	3.1471.052
54	3.1471.054
56	3.1471.056
58	3.1471.058
60	3.1471.060
65	3.1471.065
70	3.1471.070
75	3.1471.075
80	3.1471.080
85	3.1471.085
90	3.1471.090
95	3.1471.095
100	3.1471.100
105	3.1471.105
110	3.1471.110

7.0ChLP periprosthetic screw 5,0

Len	TiA
10	3.5247.010
12	3.5247.012
14	3.5247.014
16	3.5247.016
18	3.5247.018
20	3.5247.020

7.0ChLP cerclage screws

TiA
3.1221.170



NOTE: Screw dedicated to periprosthetic plates.
Optional instruments for cerclage screws - Tripod screwdriver tip 7.0ChLP [40.6271.700]

7.0ChLP screw VA 4.0

Len	Co
16	4.5246.016
18	4.5246.018
20	4.5246.020
22	4.5246.022
24	4.5246.024
26	4.5246.026
28	4.5246.028
30	4.5246.030
32	4.5246.032
34	4.5246.034
36	4.5246.036
38	4.5246.038
40	4.5246.040
42	4.5246.042
44	4.5246.044
46	4.5246.046
48	4.5246.048
50	4.5246.050
52	4.5246.052
54	4.5246.054
56	4.5246.056
58	4.5246.058
60	4.5246.060
65	4.5246.065
70	4.5246.070
75	4.5246.075
80	4.5246.080
85	4.5246.085
90	4.5246.090
95	4.5246.095

7.0ChLP screw VA 5.0

Len	Co
16	4.5244.016
18	4.5244.018
20	4.5244.020
22	4.5244.022
24	4.5244.024
26	4.5244.026
28	4.5244.028
30	4.5244.030
32	4.5244.032
34	4.5244.034
36	4.5244.036
38	4.5244.038
40	4.5244.040
42	4.5244.042
44	4.5244.044
46	4.5244.046
48	4.5244.048
50	4.5244.050
52	4.5244.052
54	4.5244.054
56	4.5244.056
58	4.5244.058
60	4.5244.060
65	4.5244.065
70	4.5244.070
75	4.5244.075
80	4.5244.080
85	4.5244.085
90	4.5244.090
95	4.5244.095
100	4.5244.100
105	4.5244.105
110	4.5244.110

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