

### 5. Insertion of the locking screw (Ø 4.9mm)

The previously determined locking screw (Ø 4.9mm) is inserted through the tissue protection sleeve.

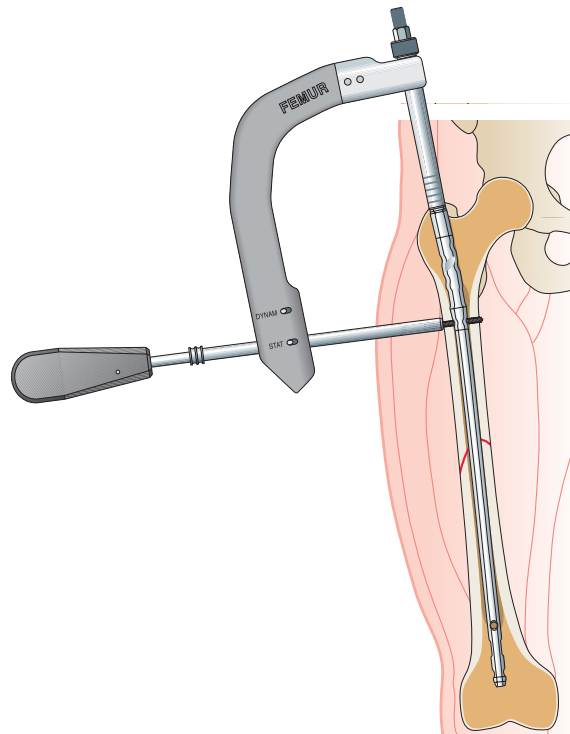
### 6. Confirmation of the correct locking screw placement

The correct placement of the inserted locking screw should be confirmed in both planes under the image intensifier.

### 7. Insertion of the dynamic locking screw

For dynamic locking, the procedure is similar to surgical steps 1 to 6, whereby the intended hole (DYNAM) on the targeting device is to be used.

It is recommended to use the solid screw driver for the insertion of the 3.9 and 4.9mm interlocking screws.



*Insertion of the screw  
over the tissue protection  
sleeve*

# Surgical Steps for Cervical Screws

## NOTE

If inserting the cervical screws, at least two screws must be inserted in the nail. It is recommended, especially with ipsilateral femoral neck fractures, to insert the third cervical screw on the anterior side.

When using the cervical screws, the proximal dynamic locking hole cannot be used.

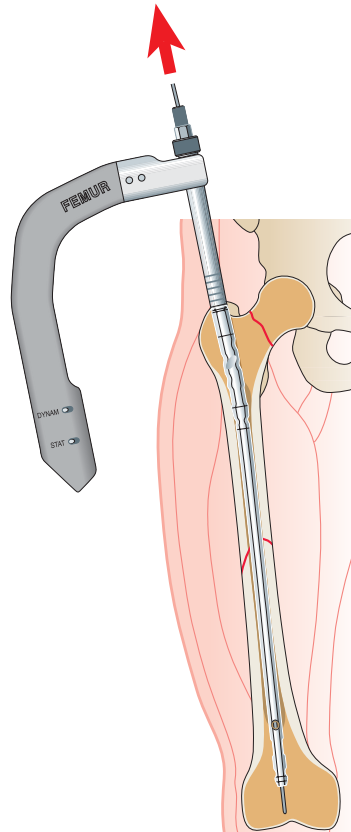
## 1. Removal of the guide wire ( $\varnothing$ 3.0mm, length 100cm)

Before locking, the smooth guide wire must be removed. Check to make sure that the connection screw is firmly attached to the nail. If not, the screw needs to be retightened.

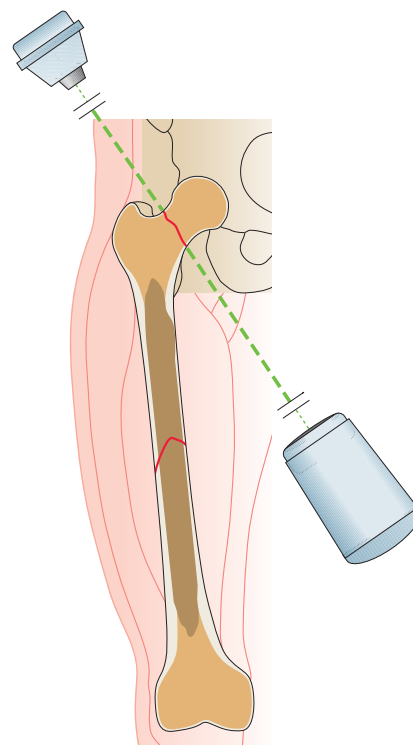
## 2. Reducing the fracture

Before locking with the cervical screws, attention should be paid that the femoral head has been properly reduced.

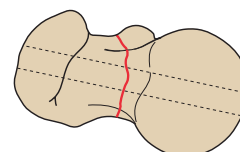
If the anatomical reduction cannot be achieved with the closed technique – especially concerning malrotation of the femoral head and neck fragment – the incision for the cervical screws should be enlarged, such that a forceps can be used for reduction.



*Removing of the guide wire*



*Reduced ipsilateral femoral neck fracture*



*Axial view of the repositioned fracture*

### 3. Fastening of the targeting module

The targeting module for cervical screws is fastened with the screw for targeting module to the targeting device for femur.

#### NOTE

On the lateral side of the targeting module RIGHT must be visible for the right femur or LEFT for the left femur.



Example:

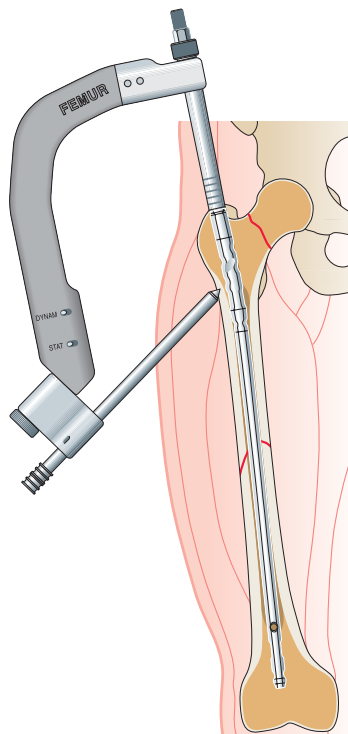
Targeting module firmly attached on the targeting device with a right intramedullary nail for femur. Important: RIGHT must then be visible from the lateral side

### 4. Insertion of the tissue protection sleeve with trocar

#### CAUTION

The distal cervical screw should lie near Shenton's arch. Therefore as a first step, the exact position of the intramedullary nail with respect to its penetration depth should be determined in the anterior-posterior plane.

The skin is incised at the appropriate site. The tissue protection sleeve ( $\varnothing$  10.0/8.0mm) with inserted trocar ( $\varnothing$  8.0mm) is introduced into the distal targeting hole of the targeting module and pushed forward up to the bone.



The tissue protection sleeve with inserted trocar in the distal targeting hole of the targeting module

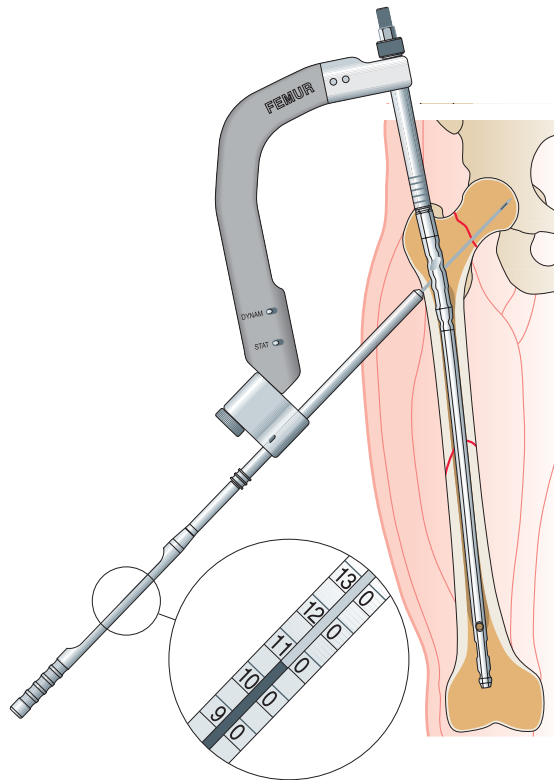
## 5. Insertion of the first guide wire

The guide wire  $\varnothing$  2.0mm, length 440mm, is inserted through the positioning guide. The guide wire should be approximately 4mm past the cortex at Shenton's arch and be inserted up to about 2mm before the cortex of the femoral head. The correct position of the guide wire needs to be checked in the axial view using the image intensifier. The wire needs to be parallel to the femoral neck axis and should pass through the center of the femoral head.

Next, the length of the inserted guide wire is measured with the measuring device for cervical screws.

### NOTE

The measuring device for cervical screws measures the actual length of the guide wire in the bone. If the tip of the guide wire was inserted into the subcortical bone, a cervical screw approximately 10mm shorter must be chosen.



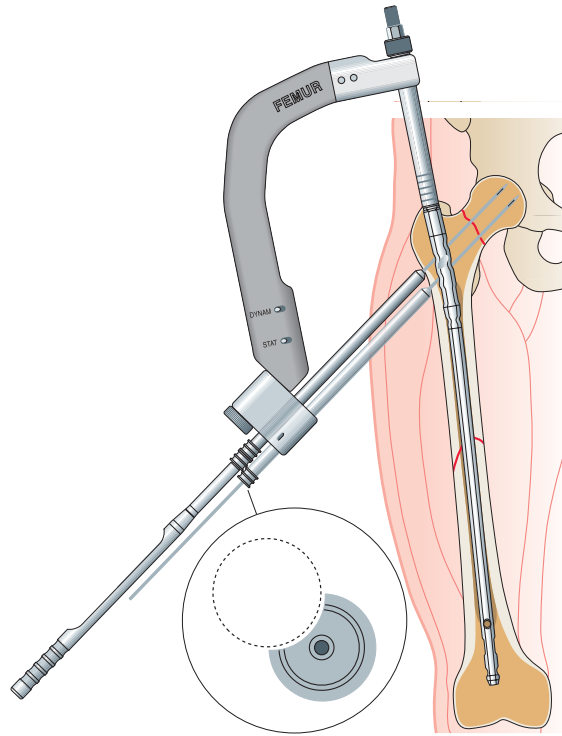
*Measuring the length of the inserted guide wire with the measuring device for cervical screws.*

## 6. Insertion of the second guide wire

### CAUTION

The inserted distal guide wire and the positioning guide should be maintained while the other guide wires are introduced. The positioning guide serves to stabilize and correct the positioning of the guide wires with respect to each other.

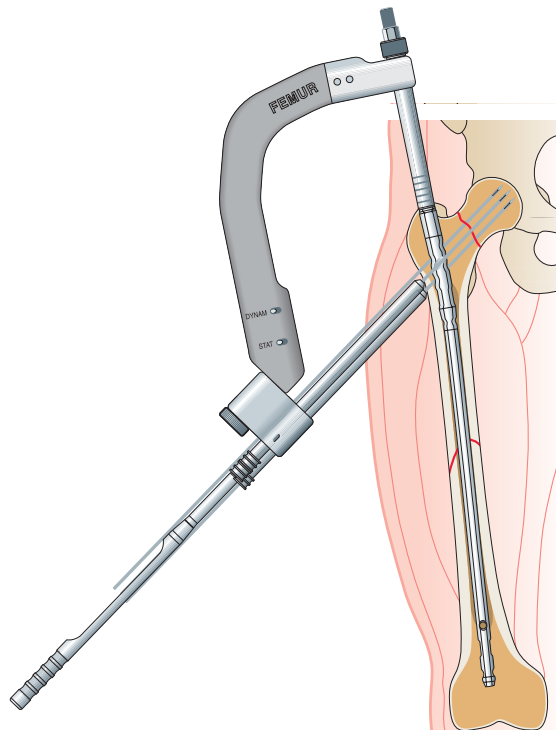
For the proximal cervical screw, the skin is opened at the entry point. The tissue protection sleeve  $\varnothing 10.0/8.0\text{mm}$  with inserted trocar  $\varnothing 8.0\text{mm}$  is introduced into the proximal targeting hole of the targeting module and pushed forward until reaching the bone. The trocar is replaced by the drill guide  $\varnothing 8.0/2.0\text{mm}$ . Next, the second guide wire  $\varnothing 2.0\text{mm}$ , length 440mm, is inserted. The penetration depth of the guide wire is again read on the measuring device for cervical screws. The drill guide must be inserted completely into the tissue protection sleeve.



Measure the length of the second inserted guide wire with the measuring device over the tissue protection sleeve and drill guide – by doing this, the positioning guide remains in the distal hole

## 7. Insertion of the third guide wire

In the case of ipsilateral femoral neck fractures, the use of a third guide wire is recommended. The procedure is identical to step 6. In this case, the positioning guide also remains in its initial position with the distal guide wire. The correct position of the third guide wire needs to be confirmed with image intensifier in the axial view.



Measure the length of the third inserted guide wire with the measuring device – by doing this, the positioning guide remains in the distal hole

## 8. Drilling of the proximal cervical screw hole

The proximal positioning guide for cervical screws is replaced by the tissue protection sleeve and placed in one of the two other position holes. Drilling is done cautiously over the proximal guide wire through the tissue protection sleeve with the step reamer  $\varnothing$  6.5/4.5mm into the femoral neck until the predetermined length of the cervical screw is reached.

### CAUTION

**Do not drill any deeper than previously measured.**

## 9. Insertion of the proximal cervical screw

Using the cannulated screwdriver with extension, the cannulated cervical screw is screwed in over the guide wire through the tissue protection sleeve.

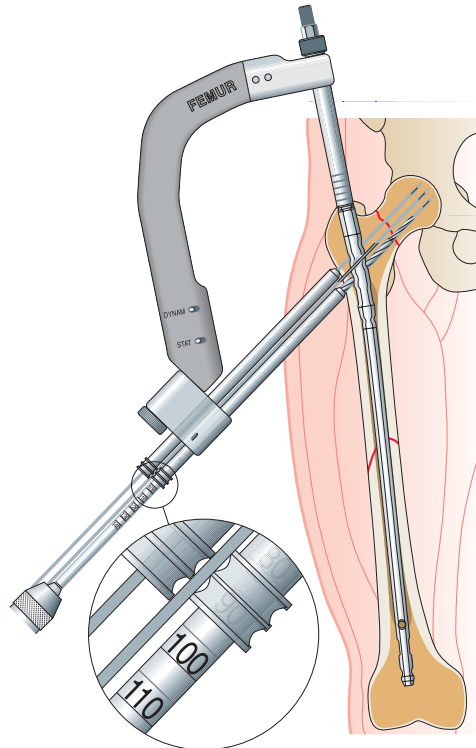
The cervical screw should be inserted carefully. In the case of weak cancellous bone, the danger of overrotation exists, even with very low insertion torques. Afterwards the guide wire is removed. Next, the correct position of the recon screw is checked in both planes with the image intensifier.

## 10. Insertion of further cervical screws

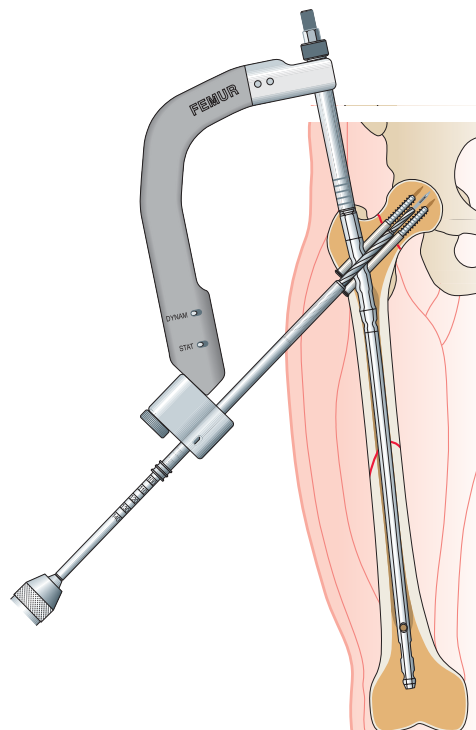
The distal and if needed, anterior, cervical screw is inserted in the same way as described previously.

### NOTE

Before drilling, the parallel position of the guide wires needs to be confirmed with the image intensifier in both planes, as the distal wire can be misguided by the Shenton's arch.



*Drilling for the distal cervical screw with the step reamer*



*Drilling with the step reamer for the anterior cervical screw, with the two previously inserted cervical screws*

# Surgical Steps for Distal Locking

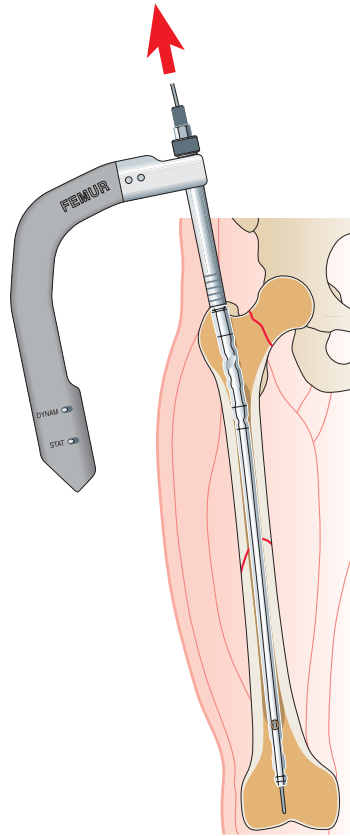
## NOTE

To statically lock at least two distal screws should be inserted.

### 1. Removal of the guide wire

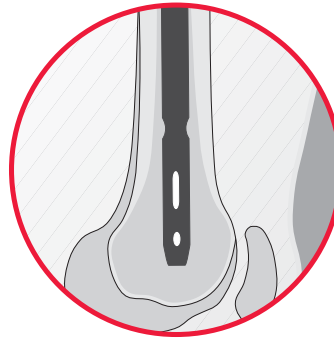
Ø 3.0mm, length 100cm

Before locking, the guide wire must be removed.

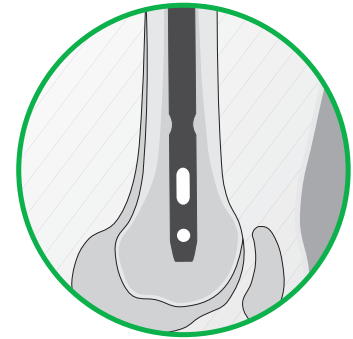


### 2. Positioning of the C-arm

The C-arm needs to be positioned so that the intended locking hole appears circular in the monitor and is found approximately in the center of the image.



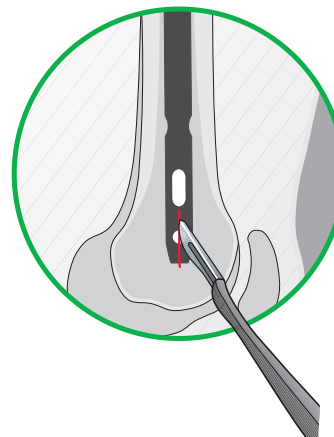
Wrong



Right

### 3. Incision of the skin

The skin is incised over the selected hole on the lateral side of the femur. After spreading the soft tissues, the site is prepared with scissors or a clamp bluntly up to the bone.

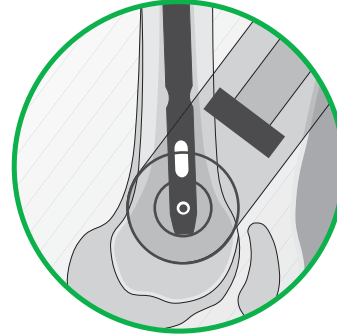


*Incision of the skin with the scalpel*

#### 4. Drilling of the locking holes

Using the C-arm and radiolucent drill attachment, the tip of the drill bit  $\varnothing$  4.0mm is centered above the appropriate locking hole. Both cortices are then drilled through.

In order to avoid injury to the dorsal nerves and blood vessels when using the locking holes in the sagittal plane, the second cortex must be drilled through with special care. The skin incision must be anterior.



*Centering of the drill bit in the middle of the nail hole*

#### 5. Measuring of the screw length

The screw length is determined with the measuring device for locking screws.

##### NOTE

The screw length is read directly.

#### 6. Insertion of the locking screw

The previously selected self-tapping locking screw  $\varnothing$  4.9mm is inserted.

#### 7. Confirmation of the correct locking screw placement

The correct placement of each inserted locking screw must be checked in both planes with the image intensifier.

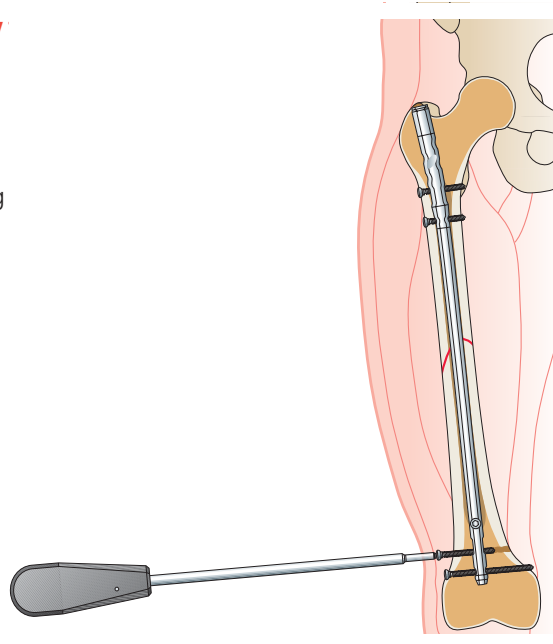
#### 8. Insertion of further distal locking screws

For each further locking screw, steps 2 to 7 are repeated.

# Possibility of Dynamic Distal Locking

## 1. Insertion of the locking screw later dynamic locking

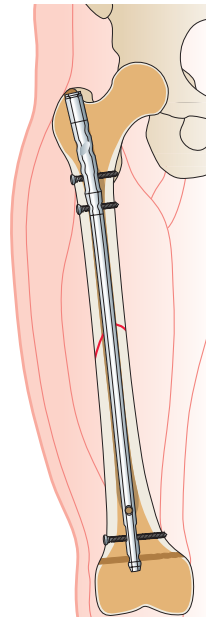
If a secondary dynamic locking is required, a locking screw can be inserted at the distal end of the long  
The procedure corresponds  
to the previously described steps.



*Insertion of the locking screw for later dynamic locking*

## 2. Activation of the dynamic locking

To activate the dynamic locking, the static locking screws have to be removed.



*Distal dynamic locking screw after the removal of the static locking screws*

# Cap Screw

If a Cap Screw is preferred or if the femoral nail is inserted too deep in the medullary canal, the different lengths of cap screws ensure that the extra distance can be compensated. The cap screws are available in lengths from 0 to 25 mm (in 5 mm increments).

## 1. Insertion of the guide wire

The guide wire  $\varnothing$  2.0mm, length 300mm, is inserted into the intramedullary nail through the connection screw of the targeting device which is still attached.

## 2. Removal of the connection screw and the targeting device

The connection screw and the targeting device are removed. The inserted guide wire remains in the intramedullary nail.

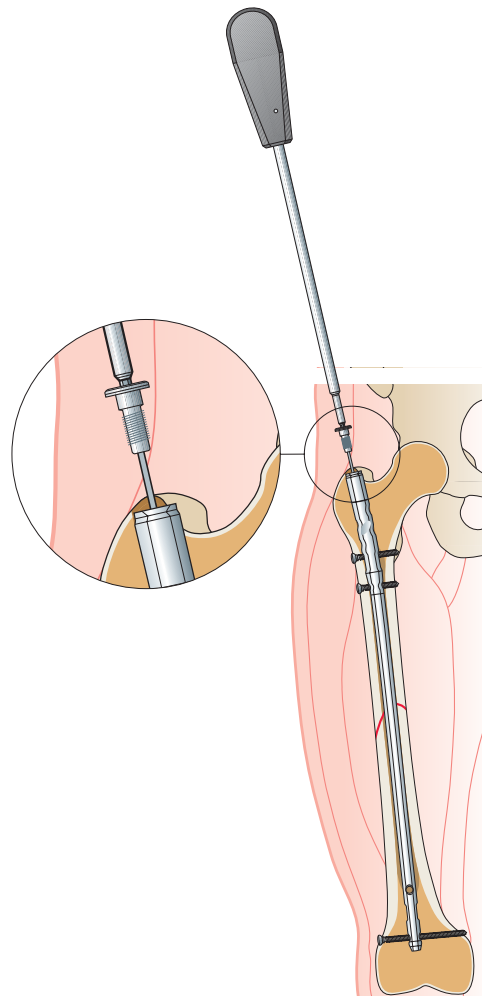
## 3. Insertion of the cap screw

The previously selected cap screw is inserted over the guide wire using the cannulated screwdriver.

## 4. Confirmation that the cap screw is properly seated

The correct seating of the cap screw in the intramedullary nail must be checked using the image intensifier.

## 5. Removal of the guide wire

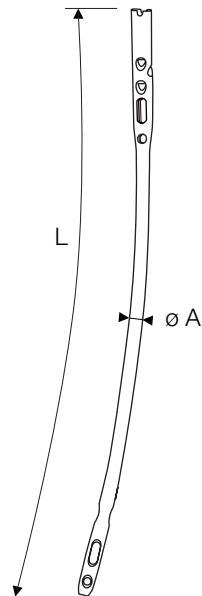


*Insertion of the cap screw over the guide wire with the hexagonal screwdriver*

# Implants Sirius Intramedullary Nail for Femur



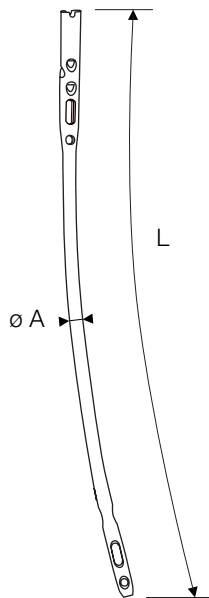
Sirius Intramedullary Nail for femur right, sterile



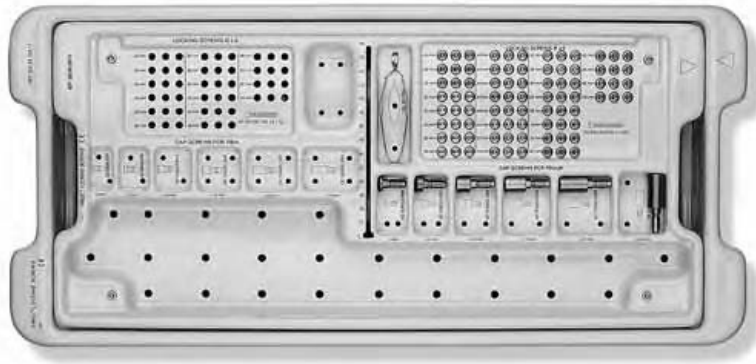
ø A mm	L mm	Titanium Alloy REF	ø A mm	L mm	Titanium Alloy REF
9.3	300	02.02651.930	12	300	02.02651.230
9.3	320	02.02651.932	12	320	02.02651.232
9.3	340	02.02651.934	12	340	02.02651.234
9.3	360	02.02651.936	12	360	02.02651.236
9.3	380	02.02651.938	12	380	02.02651.238
9.3	400	02.02651.940	12	400	02.02651.240
9.3	420	02.02651.942	12	420	02.02651.242
9.3	440	02.02651.944	12	440	02.02651.244
9.3	460	02.02651.946	12	460	02.02651.246
9.3	480	02.02651.948	12	480	02.02651.248
10.3	300	02.02651.030	13	300	02.02651.330
10.3	320	02.02651.032	13	320	02.02651.332
10.3	340	02.02651.034	13	340	02.02651.334
10.3	360	02.02651.036	13	360	02.02651.336
10.3	380	02.02651.038	13	380	02.02651.338
10.3	400	02.02651.040	13	400	02.02651.340
10.3	420	02.02651.042	13	420	02.02651.342
10.3	440	02.02651.044	13	440	02.02651.344
10.3	460	02.02651.046	13	460	02.02651.346
10.3	480	02.02651.048	13	480	02.02651.348
11	300	02.02651.130			
11	320	02.02651.132			
11	340	02.02651.134			
11	360	02.02651.136			
11	380	02.02651.138			
11	400	02.02651.140			
11	420	02.02651.142			
11	440	02.02651.144			
11	460	02.02651.146			
11	480	02.02651.148			



Sirus Intramedullary Nail for femur left, sterile



$\varnothing A$ mm	L mm	Titanium Alloy REF	$\varnothing A$ mm	L mm	Titanium Alloy REF
9.3	300	02.02652.930	12	300	02.02652.230
9.3	320	02.02652.932	12	320	02.02652.232
9.3	340	02.02652.934	12	340	02.02652.234
9.3	360	02.02652.936	12	360	02.02652.236
9.3	380	02.02652.938	12	380	02.02652.238
9.3	400	02.02652.940	12	400	02.02652.240
9.3	420	02.02652.942	12	420	02.02652.242
9.3	440	02.02652.944	12	440	02.02652.244
9.3	460	02.02652.946	12	460	02.02652.246
9.3	480	02.02652.948	12	480	02.02652.248
10.3	300	02.02652.030	13	300	02.02652.330
10.3	320	02.02652.032	13	320	02.02652.332
10.3	340	02.02652.034	13	340	02.02652.334
10.3	360	02.02652.036	13	360	02.02652.336
10.3	380	02.02652.038	13	380	02.02652.338
10.3	400	02.02652.040	13	400	02.02652.340
10.3	420	02.02652.042	13	420	02.02652.342
10.3	440	02.02652.044	13	440	02.02652.344
10.3	460	02.02652.046	13	460	02.02652.346
10.3	480	02.02652.048	13	480	02.02652.348
11	300	02.02652.130			
11	320	02.02652.132			
11	340	02.02652.134			
11	360	02.02652.136			
11	380	02.02652.138			
11	400	02.02652.140			
11	420	02.02652.142			
11	440	02.02652.144			
11	460	02.02652.146			
11	480	02.02652.148			



Graphic case (with content)  
for locking screws

**Titanium Alloy**  
REF  
110.99.108F

Graphic case (empty)

REF  
100.99.108

Insert (with content) for femur cervical  
screws

**Titanium Alloy**  
REF  
110.99.108FC

Insert (empty)  
for cervical screws

REF  
100.99.108/3



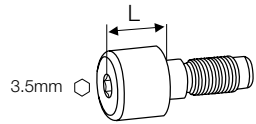
Sirius cap screw, for femur



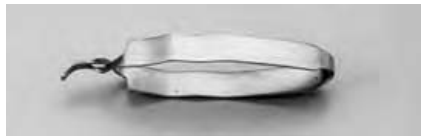
quantity\*  
1  
Titanium Alloy  
REF  
02.03650.096



Sirius cap screw, for femur



L mm	quantity*	Titanium Alloy REF
0		02.03650.096
5	1	02.03650.097
10	1	02.03650.098
15	1	02.03650.095
20	1	02.03650.099
25	1	02.03650.100

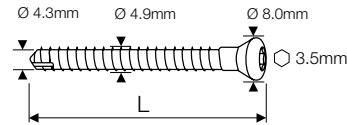


Screw forceps self-holding

quantity\*  
1  
REF  
100.90.005



Locking screw, self-tapping

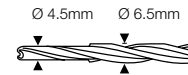
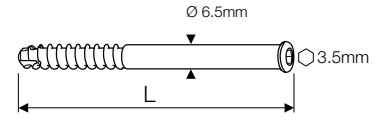


Drill ø 4.0mm

L mm	quantity*	Titanium Alloy REF
24	3	02.03149.024
26	3	02.03149.026
28	3	02.03149.028
30	3	02.03149.030
32	3	02.03149.032
34	3	02.03149.034
36	3	02.03149.036
38	3	02.03149.038
40	3	02.03149.040
42	3	02.03149.042
44	3	02.03149.044
46	3	02.03149.046
48	3	02.03149.048
50	3	02.03149.050
52	3	02.03149.052
54	3	02.03149.054
56	3	02.03149.056
58	3	02.03149.058
60	3	02.03149.060
64	3	02.03149.064
68	3	02.03149.068
72	3	02.03149.072
76	3	02.03149.076
80	3	02.03149.080
85	3	02.03149.085
90	3	02.03149.090
95	3	02.03149.095
100	3	02.03149.100



Cervical screw cannulated

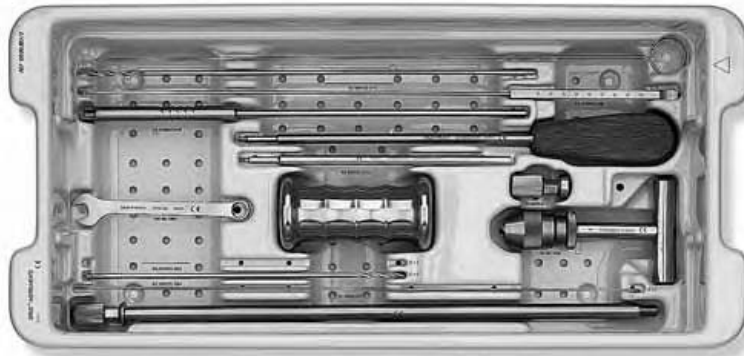


Step reamer ø 4.5 / 6.5mm  
cannulated

L mm	quantity*	Titanium Alloy REF
60	3	02.03100.061
65	3	02.03100.062
70	3	02.03100.063
75	3	02.03100.064
80	3	02.03100.065
85	3	02.03100.066
90	3	02.03100.067
95	3	02.03100.068
100	3	02.03100.069
105	3	02.03100.070
110	3	02.03100.071
115	3	02.03100.072
120	3	02.03100.073
125	3	02.03100.074
130	3	02.03100.075
135	3	02.03100.076
140	3	02.03100.077

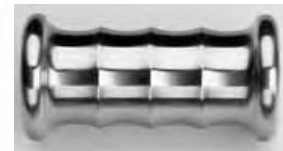
\* Indicates the quantity in the graphic case,  
REF stands for 1 piece.

# Instruments Sirius Intramedullary Nail for Femur



Combination wrench hexagonal

Ø mm	L mm	quantity*	REF
11	140	1	100.90.080



Ram (Slaphammer)

quantity*	REF
1	110.45.031



Graphic case (with content)

REF  
110.99.207F

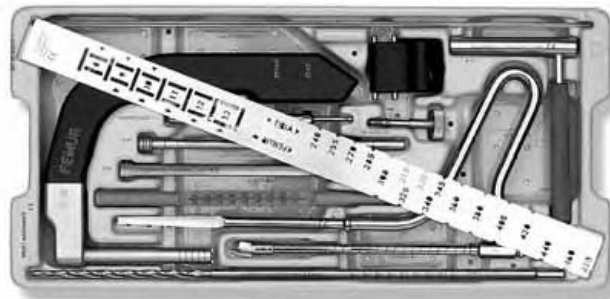
Graphic case (empty)

REF  
100.99.207



Universal chuck cannulated,  
with T-handle

L mm	quantity*	REF
140	1	100.90.500



Insert (empty)

REF  
100.99.207/4



Three-fluted drill bit,  
with quick coupling

Ø mm	L mm	quantity*	REF
4.0	355	1	02.00020.010



Hexagonal screwdriver large,  
cannulated

Ø mm	L mm	Ø mm	quantity*	REF
2.2	340	3.5	1	02.00020.012



Hexagonal screwdriver,  
solid

Ø mm	L mm	Ø mm	quantity*	REF
2.2	340	3.5	1	02.00020.112



Measuring device,  
for locking screws

quantity*	REF
1	02.00020.048



Trocar

Ø mm	quantity*	REF
8.0	1	02.00020.006



Elongation, for hexagonal screwdriver

Ø mm	L mm	Ø mm	quantity*	REF
2.2	190	3.5	1	02.00020.070



Guide wire,  
for cap screws

Ø mm	L mm	quantity*	REF
2.0	440	1	02.00020.071



Drill guide

Ø mm	quantity*	REF
8.0/4.0	1	02.00020.007



Cleaning wire

Ø mm	L mm	quantity*	REF
2.0	465	1	02.00020.014



Guide wire

Ø mm	L mm	quantity*	REF
3.0	950	–	02.00020.043



Guide rod, with threaded tip

Ø mm	L mm	quantity*	REF
3.0	365	1	02.00020.042



Ram (Slaphammer) guide

quantity*	REF
1	02.00020.046



Connection screw,  
for targeting device

quantity*	REF
1	02.00020.003



Ratchet wrench

Ø mm	quantity*	REF
11	1	02.00020.049



Driving head

quantity*	REF
1	02.00020.047



Tissue protection sleeve

Ø mm	quantity*	REF
10.0/8.0	1	02.00020.005



Chuck

Ø mm	quantity*	REF
1.6–2.4	1	02.00020.052



Awl cannulated

Ø mm	quantity*	REF
13	1	02.00020.016

\* Indicates the quantity in the graphic case,  
REF stands for 1 piece.



Targeting device, for femur

quantity\* REF  
1 02.00020.031



Drill guide

Ø mm quantity\* REF  
8.0/2.0 1 02.00020.036



SRTD handle

L mm quantity\* REF  
360 - 02.00020.055



Targeting module,  
for cervical screws

quantity\* REF  
1 02.00020.033



Guide wire,  
with threaded tip,  
for cervical screws

Ø mm L mm quantity\* REF  
2.0 440 3 02.00020.037



SRTD tissue protection sleeve

Ø mm quantity\* REF  
12.0/8.0 - 02.00020.056



Screw, for targeting module

quantity\* REF  
1 02.00020.034



Drill bit, with flexible shaft

Ø mm L mm quantity\* REF  
13 290 1 02.00020.040



SRTD drill guide

Ø mm quantity\* REF  
3.2 - 02.00020.057  
4.0 - 02.00020.059



Measuring device, for cervical screws

quantity\* REF  
1 02.00020.038



Tissue protection sleeve

Ø mm quantity\* REF  
15/13 1 02.00020.041



SRTD prick punch

Ø mm quantity\* REF  
3.2 - 02.00020.058  
4.0 - 02.00020.060



Step reamer cannulated,  
for cervical screws

Ø mm quantity\* REF  
6.5/4.5 1 02.00020.039



Measuring device

quantity\* REF  
1 02.00020.045



Positioning guide, for cervical screws

quantity\* REF  
1 02.00020.035



Three-fluted drill bit,  
with quick coupling

Ø mm L mm quantity\* REF  
3.2 250 - 02.00020.053  
4.0 250 1 02.00020.054

\* Indicates the quantity in the graphic case,  
REF stands for 1 piece.



Please refer to package insert for complete product information, including contraindications, warnings, precautions, and adverse effects.

Contact your Zimmer representative or visit us at [www.zimmer.com](http://www.zimmer.com)

