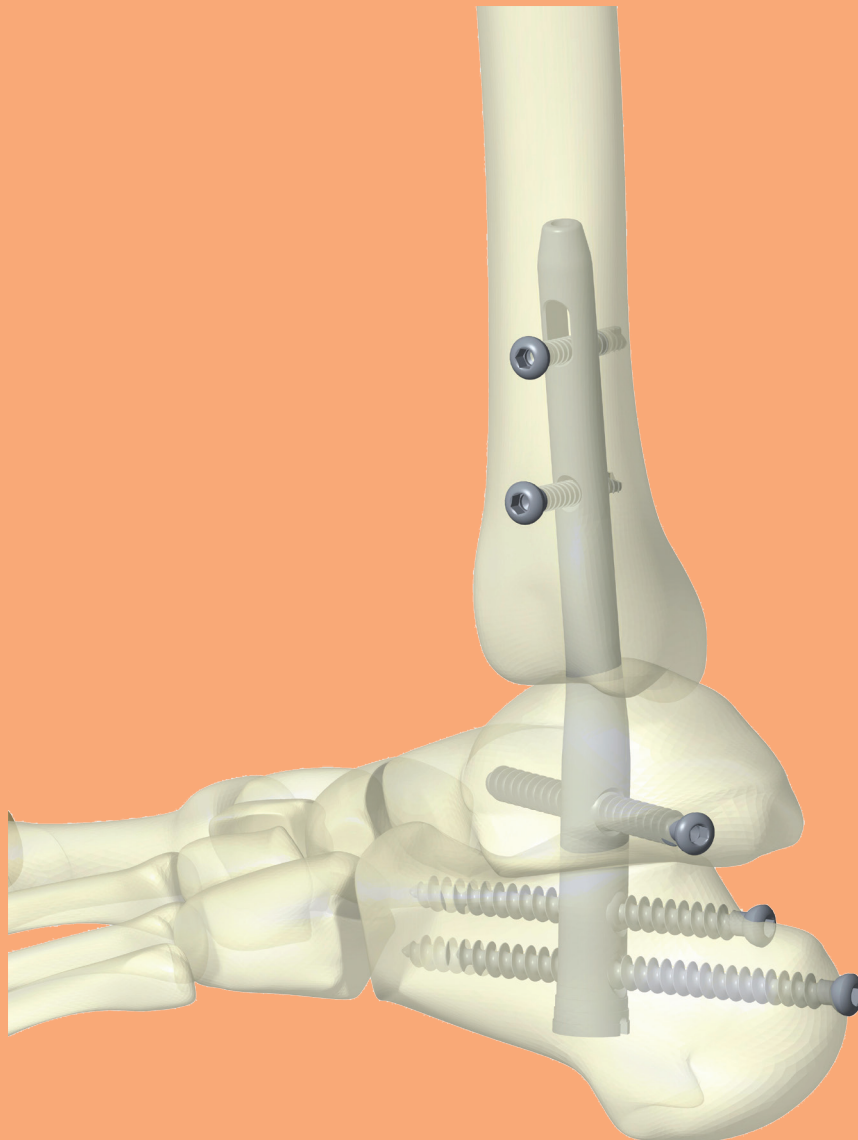


Ankle arthrodesis nail



The following surgical description contains general outlines for operations with Ankle arthrodesis nails. However, the operating surgeon shall adapt the content to each individual case considering the patient's condition and all other relevant factors that may have influence on the outcome of the surgery.

Sanatmetal Ltd. strongly recommends participation in workshops and trainings prior to the first operation.

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1.1 | The implant

- Multiplanar locking
- 4.8 and 6.5 mm locking screws
- Anatomically curved nail

1.2 | The instrument set

- Rotatable targeting arm
- Color-coded system

1.3 | Indications

- Charcot foot
- joint pain that cannot be treated with other methods
- structural instability of bone and disorders
- following tumor surgery
- avascular necrosis of the talus
- rheumatoid arthritis and pseudo-joint

Contraindications

- active infection
- improper soft tissue proportions on the incision site

2.1 | Ankle arthrodesis nail

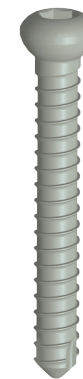
Diameter (mm)	Length (mm)	L/R
10	150; 180; 240	right/left
12	150; 180; 240	right/left
13	150; 180; 240	right/left

Material

anodized titanium



2.2 | Locking screw Ø 4,8 mm



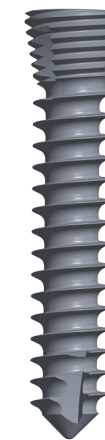
Length (mm)

25-100

Material

anodized titanium

2.3 | Cancellous screw Ø 6,5 mm



Length (mm)

25-110

Material

anodized titanium

3 | Surgical description

3.1 | Patient positioning

Place the patient prone on a radiolucent table.

3.2 | Nail selection

Choose the appropriate nail size by preoperative radiological assessment or with the use of the measuring rod.

3.3 | Fibular osteotomy

Perform fibula osteotomy according to general guidelines. In most cases, a 1-cm-large piece should be removed.

3.4 | Bone cap removal

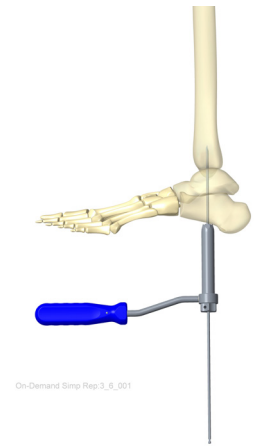
Remove the bone cap from the articular surface of the tibia and calcaneus, then place it back by rotating it 90 degrees. It does not cause limb shortening but promotes bone formation.

3.5 | Incision site

Make an incision in line of the fourth metatarsal aligned to the axis of the fibula.

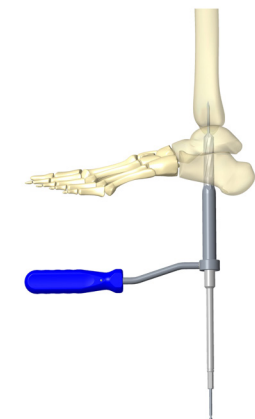
3.6 | K-Wire insertion

After skin incision, insert the 3.2 mm Kirschner wire to the middle of the talar dome. Articulation talocruralis should not be aligned precisely 90 degrees to the tibial metaphysis, but in a $90+5...10^\circ$ angle. It also depends on the gender of the patient.



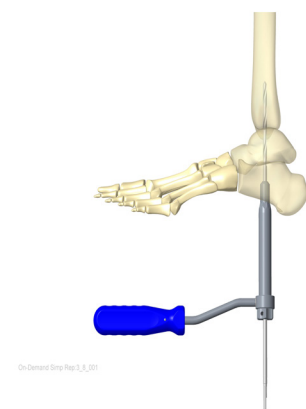
3.7 | Reaming

Prepare the bone up until the tibia with the K-Wire-guided 12.5 mm reamer.



3.8 | Opening the tibial medullar cavity

Open the medullar cavity with the 5 mm drill.



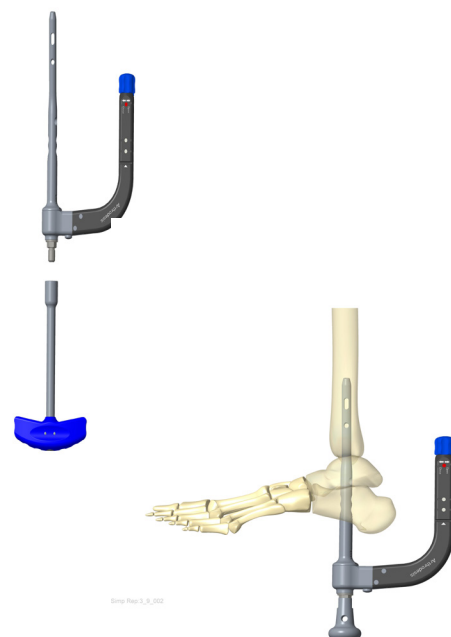
3 | Surgical description

3.9 | Nail insertion

Attach the previously selected, proper-size nail to the targeting arm. The pull-in screw shall always be tightened with screwdriver.

If possible, the nail should be inserted by hand. Strong hammering should be avoided. If it is still necessary, twist the impactor button onto the targeting arm before using the hammer.

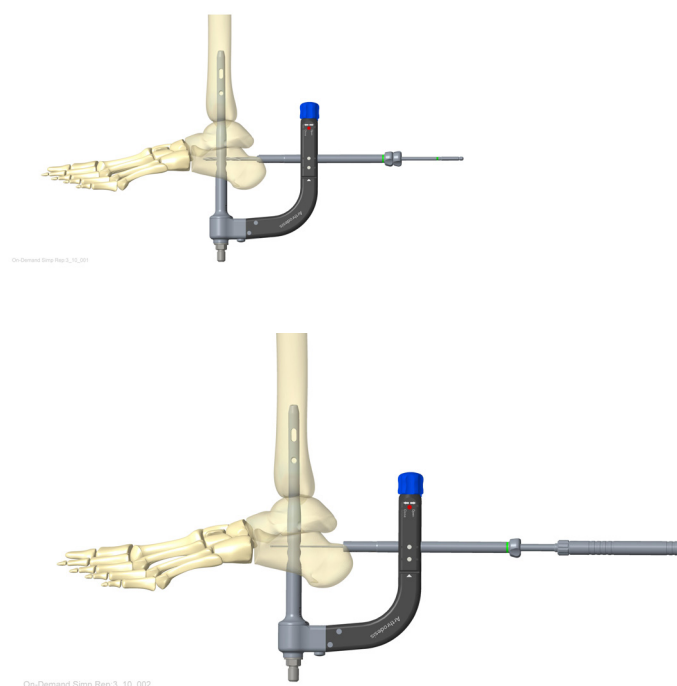
Verify the proper nail position with image intensifier.



3.10 | Locking

Lock the two white and the one red-colored holes of the nail first. They are located close to the targeting arm. Use 6.5 mm cancellous screws for this.

Push the button on the targeting arm and rotate the arm to the white position. Place the soft tissue protector and the drill sleeve into the correct (white) hole of the targeting arm. Use the 4.2 mm spiral drill, then remove the drill sleeve for length measurement.

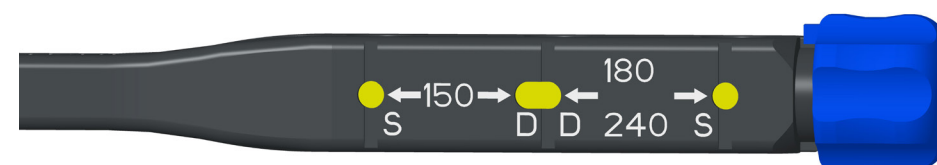


Afterwards, insert the 6.5 mm cancellous screw with the proper length.

Push the button on the targeting arm and rotate the arm to the red position. Place the soft tissue protector and the drill sleeve into the red-colored hole. After drilling and depth measuring, the 6.5 mm cancellous bone screw can be inserted.

Use the proximal targeting arm for locking the yellow-colored further located holes. Choose the holes of the targeting arm that belong to the corresponding screw lengths. Hereby, 4.8 mm locking screws shall be used.

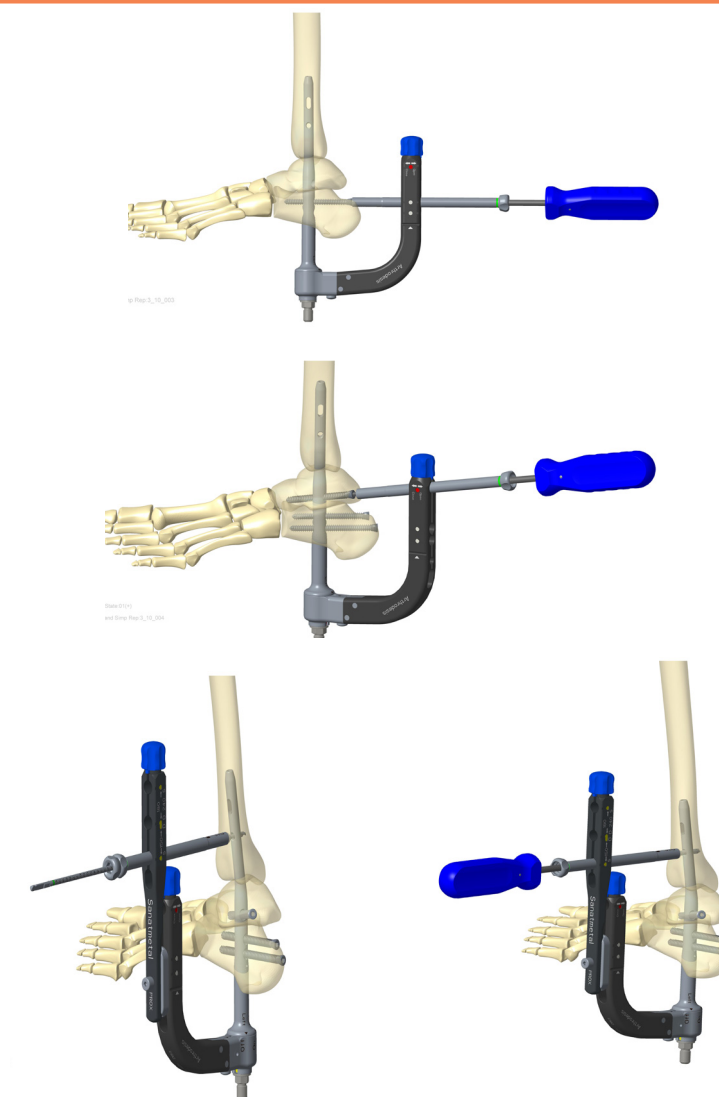
Push the button to rotate the arm to the yellow position. Place the soft tissue protector and the drill sleeve into the yellow-colored hole. After drilling and depth measuring, the 4.8 mm locking screw is ready to be inserted.



3.11 | Wound closure

Insert the end screw into the nail. The end screw is necessary if the nail has to be removed for certain reasons (inflammation).

Close the wound.



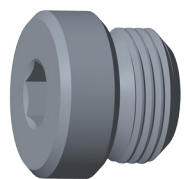
4 | Implant list

4.1 | Ankle arthrodesis nail



Cat. number	Diameter (mm)	L/R	Length (mm)
392110150	10	left	150
392110180	10	left	180
392112150	12	left	150
392112180	12	left	180
392113150	13	left	150
392113180	13	left	180
392210150	10	right	150
392210180	10	right	180
392212150	12	right	150
392212180	12	right	180
392213150	13	right	150
392213180	13	right	180
392110240	10	left	240
392112240	12	left	240
392113240	13	left	240
392210240	10	right	240
392212240	12	right	240
392213240	13	right	240

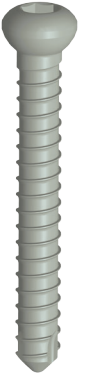
4.2 | End screw



Size	Anodized titanium
0 mm	392110001

4.3 | Locking screw Ø 4,8 mm

Length	Anodized titanium	Length	Anodized titanium
25 mm	364048025	55 mm	364048055
26 mm	364048026	56 mm	364048056
28 mm	364048028	58 mm	364048058
30 mm	364048030	60 mm	364048060
32 mm	364048032	62 mm	364048062
34 mm	364048034	64 mm	364048064
35 mm	364048035	65 mm	364048065
36 mm	364048036	66 mm	364048066
38 mm	364048038	68 mm	364048068
40 mm	364048040	70 mm	364048070
42 mm	364048042	72 mm	364048072
44 mm	364048044	75 mm	364048075
45 mm	364048045	76 mm	364048076
46 mm	364048046	80 mm	364048080
48 mm	364048048	85 mm	364048085
50 mm	364048050	90 mm	364048090
52 mm	364048052	95 mm	364048095
54 mm	364048054	100 mm	364048100



4.4 | Cancellous screw Ø 6,5 mm



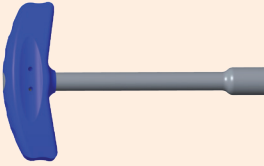

Length	Anodized titanium	Length	Anodized titanium
25 mm	392365025	70 mm	392365070
30 mm	392365030	75 mm	392365075
35 mm	392365035	80 mm	392365080
40 mm	392365040	85 mm	392365085
45 mm	392365045	90 mm	392365090
50 mm	392365050	95 mm	392365095
55 mm	392365055	100 mm	392365100
60 mm	392365060	105 mm	392365105
65 mm	392365065	110 mm	392365110



5 | Instrument list

5.1 | Instruments

Distal targeting arm	1 pc	 252910001
Proximal targeting arm	1 pc	 252910002
Indicator	1 pc	 252910003
Soft tissue protector (12.5 mm)	1 pc	 252910004
Drill sleeve (3.2 mm)	1 pc	 252910005
Drill sleeve (5 mm)	1 pc	 252910006
Reamer (12.5 mm)	1 pc	 252910007

Spiral drill (4.2x310 mm)	1 pc	 259900007
Spiral drill (3.2x195 mm)	1 pc	 252910008
Screwdriver (3.5 mm)	1 pc	 210510002
Measuring rod (500 mm)	1 pc	 939999072
Kirschner wire (3.2x375 mm)	4 pcs	 256732375
T-wrench	1 pc	 257920008
Spiral drill (5x315 mm)	1 pc	 939550315

5 | Instrument list

Impactor for intramedullary nail	1 pc	 939999083
Impactor button	1 pc	 188560000
Depth gauge for locking screws (4.8-6.5 mm)	1 pc	 255920016
Filled-up tray		252810000

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