

FOOT

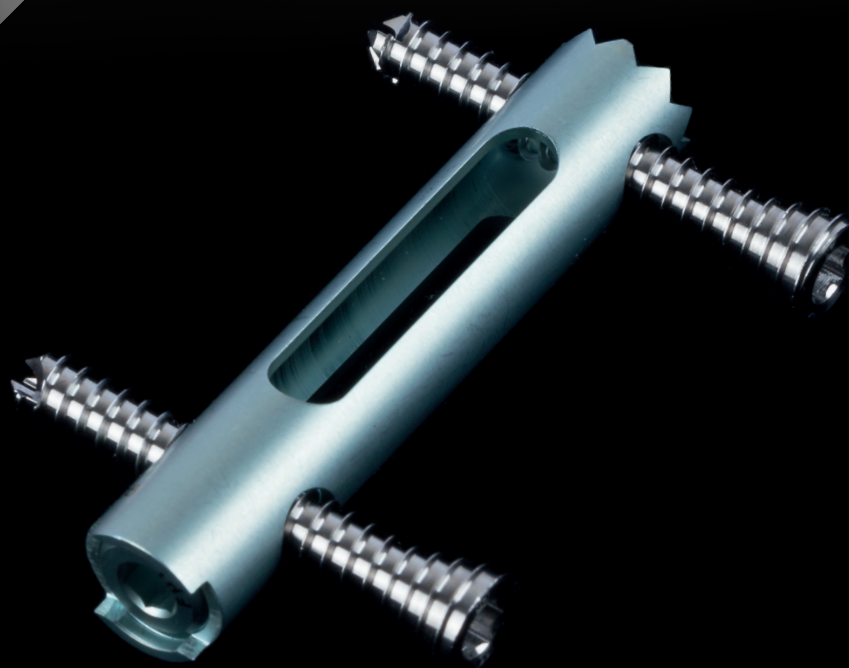
# HINDFOOT SURGERY

SURGICAL TECHNIQUE

## 15 STEPS

# CALCANail

CALCANEAL FRACTURES



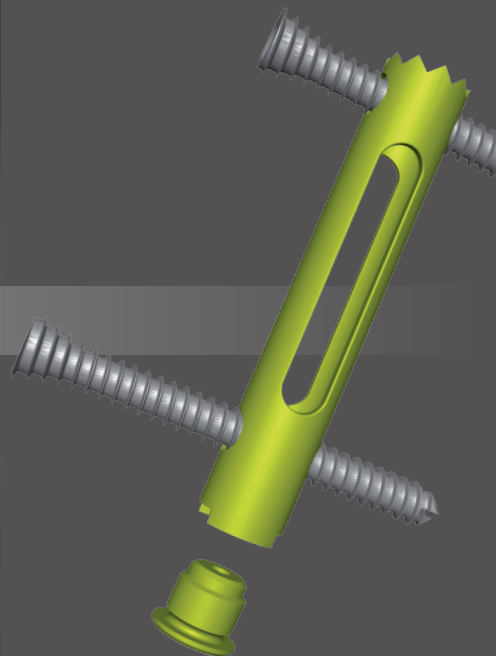
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P<sup>r</sup> Thomas MITTLMEIER  
P<sup>r</sup> Patrick SIMON

GROUP  
**FH** ORTHO™



## THE FRACTURE TECHNIQUE

- Minimally invasive approach at the posterior calcaneal tuberosity avoids complications associated with standard lateral approach;
- Locking nail holds posterior talar articular surface in the proper position after intrafocal reduction;
- Option to convert easily from internal fixation procedure to subtalar fusion.

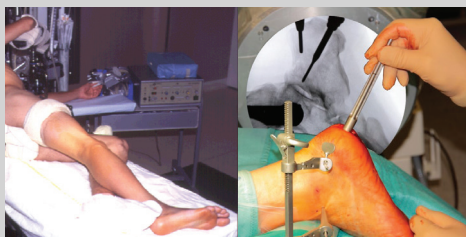


### The Calcanail fracture step by step

**1**

#### Patient positioning

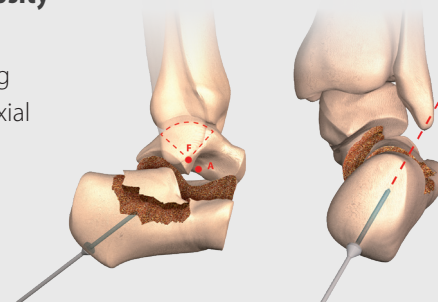
Side-lying or prone



**2**

#### Placement of K-wire in posterior tuberosity

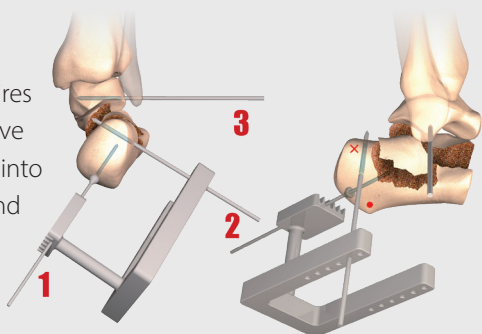
Controlled centring using lateral and axial amplifier



**3**

#### Placement of distractor K-wires

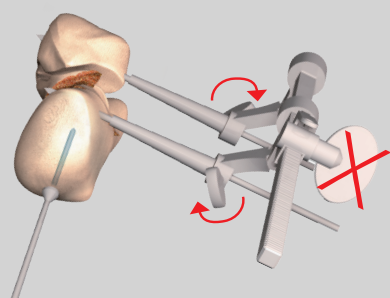
Introduce 2 K-wires with a motor drive perpendicularly into the calcaneus and the talus



**4**

#### Fixation of the distractor

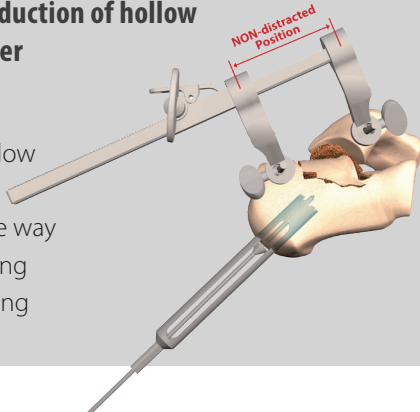
Make parallel the K-wires, insert and lock in the distractor placed on the lateral facet



**5**

#### Introduction of hollow reamer

Introduce the hollow reamer with a motor drive all the way to the fracture using fluoroscopy tracking



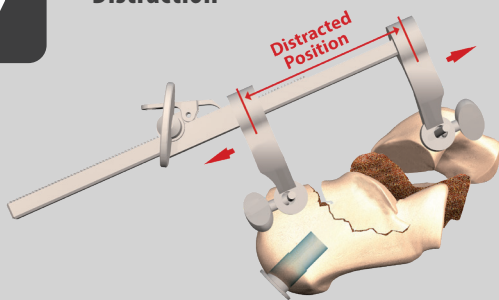
**6**

#### Extraction of the hollow reamer

Bone plug removal



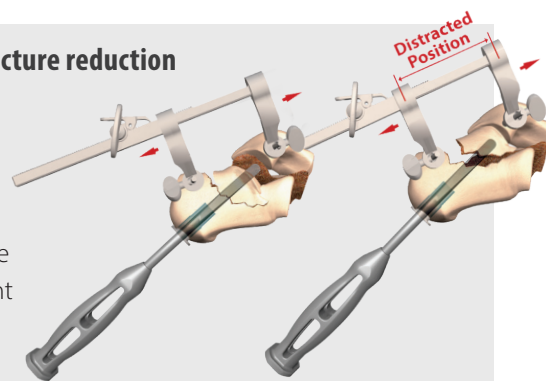
7

**Distraction**

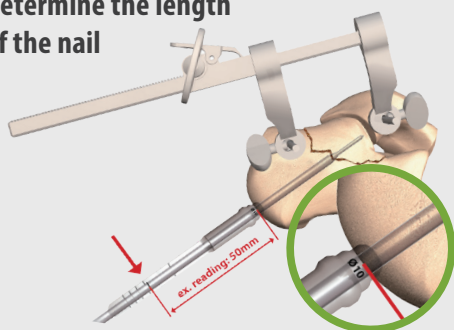
8

**Fracture reduction**

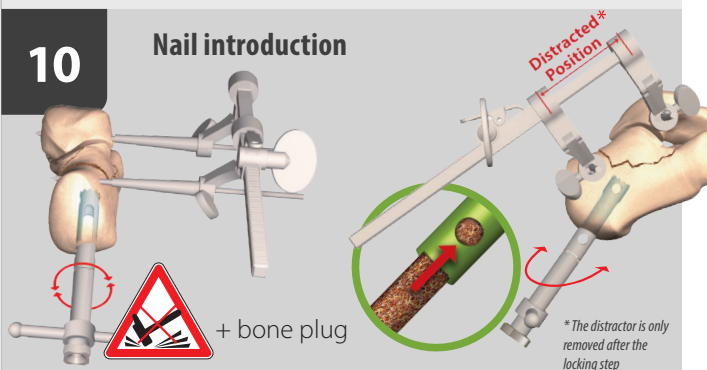
If the fracture is of the mixed type, reduce the medial fragment first



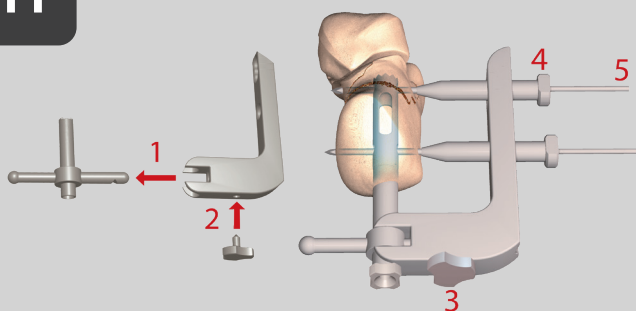
9

**Determine the length of the nail**

10

**Nail introduction**

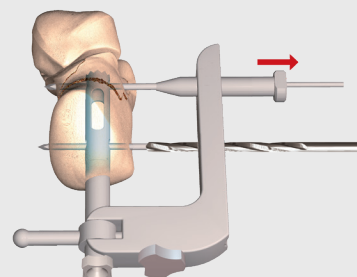
11

**Placement of the alignment frame**

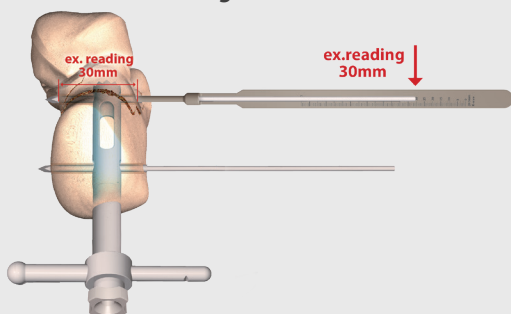
12

**Preparation for the locking step**

Remove the drill guide and drill on K-wire with a cannulated drill



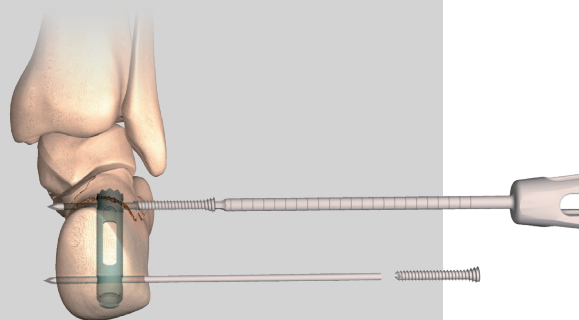
13

**Measure the length of the screws**

14

**Locking step**

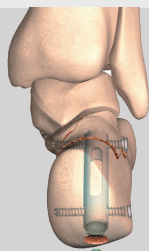
Introduce the 2 screws using the guide wires



15

**Placement of the cap**

With the screwdriver, introduce the cap, then remove the K-wires, nail holder, distractor, and close the various incisions

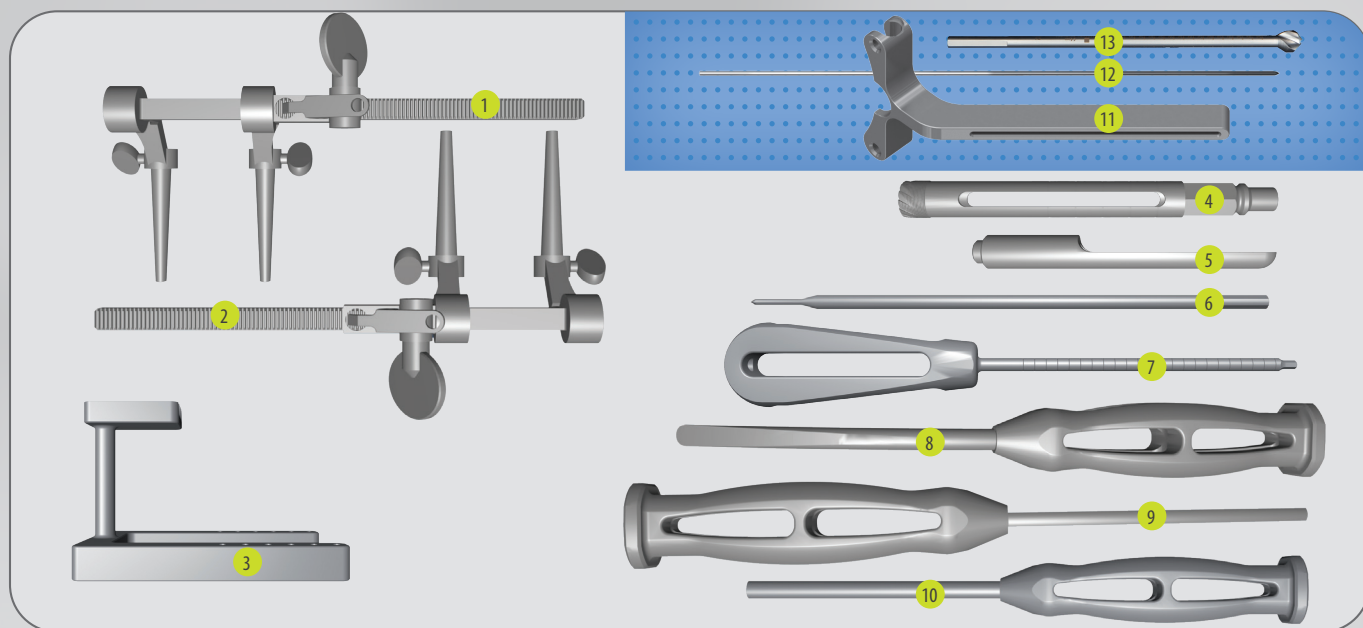
**Implants references**

| REF.    | FRACTURE NAIL Ø10 |
|---------|-------------------|
| 265 546 | Ø10 L 45 + cap    |
| 265 547 | Ø10 L 50 + cap    |
| 265 548 | Ø10 L 55 + cap    |

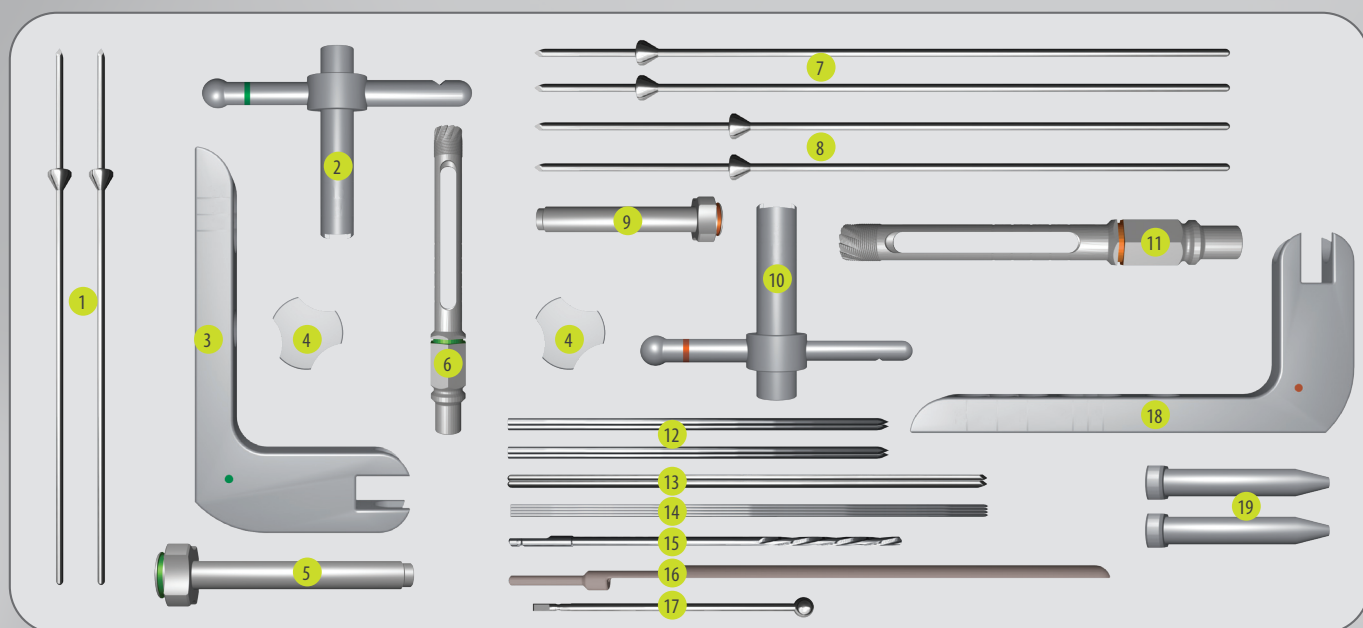
| REF.    | SCREW   |
|---------|---------|
| 267 264 | Ø5 L 24 |
| 267 265 | Ø5 L 26 |
| 267 266 | Ø5 L 28 |
| 265 552 | Ø5 L 30 |
| 265 553 | Ø5 L 32 |
| 265 554 | Ø5 L 34 |
| 265 555 | Ø5 L 36 |
| 265 556 | Ø5 L 38 |
| 265 557 | Ø5 L 40 |

| REF.    | HIGH LENGTH SCREW |
|---------|-------------------|
| 265 558 | Ø5 L 45           |
| 265 559 | Ø5 L 50           |
| 265 560 | Ø5 L 55           |
| 265 561 | Ø5 L 60           |
| 265 562 | Ø5 L 65           |
| 265 563 | Ø5 L 70           |
| 265 564 | Ø5 L 75           |
| 265 565 | Ø5 L 80           |

# V3 INSTRUMENTATION



- |                                                        |              |                                        |              |                                          |              |
|--------------------------------------------------------|--------------|----------------------------------------|--------------|------------------------------------------|--------------|
| 1. Distractor.....                                     | ref. 265 599 | 6. Calcanail nail guide.....           | ref. 266 291 | 10. Calcanail straight tamp.....         | ref. 265 576 |
| 2. Compressor.....                                     | ref. 266 353 | 7. Ø18 Cannulated 3.5 screwdriver..... | ref. 254 599 | 11. Screwing guide with window.....      | ref. 268 771 |
| 3. Calcanail Positioning square.....                   | ref. 266 147 | 8. Spatula.....                        | ref. 265 586 | 12. Guide K-wire Ø2.4 Lg 250 (x2).....   | ref. 264 586 |
| 4. Hollow reamer for fusion nail removal Ø14 L140..... | ref. 268 770 | 9. Calcanail curved tamp.....          | ref. 265 575 | 13. Cannulated drill bit Ø12 Lg 180..... | ref. 271 315 |
| 5. Nail lenght gauge.....                              | ref. 268 772 |                                        |              |                                          |              |



- |                                                           |              |                                                     |              |                                                     |              |
|-----------------------------------------------------------|--------------|-----------------------------------------------------|--------------|-----------------------------------------------------|--------------|
| 1. Calcanail Ø10 K-wire with stopper.....                 | ref. 265 570 | 8. K-wire with stopper Ø3,2 Calcanail Ø12 (x2)..... | ref. 267 259 | 15. Drill bit Ø3.7 for cannulated screw.....        | ref. 265 587 |
| 2. Calcanail nail holder Ø10.....                         | ref. 265 579 | 9. Calcanail Handle-Nail connector Ø12.....         | ref. 268 769 | 16. Cannulated screw length gauge L 150/200 mm..... | ref. 266 146 |
| 3. Alignment frame for fracture nail Ø10.....             | ref. 265 577 | 10. Calcanail nail holder Ø12.....                  | ref. 265 580 | 17. Ball End Burr Ø7.9 L110.....                    | ref. 267 441 |
| 4. Alignment frame-nail holder connecting screw (x2)..... | ref. 265 581 | 11. Calcanail hollow reamer Ø12 L140.....           | ref. 267 056 | 18. Frame for fusion nail Ø12.....                  | ref. 265 578 |
| 5. Calcanail Handle-Nail connector Ø10.....               | ref. 268 768 | 12. K-wire for distractor Ø3.2 L 150 mm (x4).....   | ref. 265 668 | 19. Drill guide for K-wire Ø1.6 L 200mm (x2).....   | ref. 266 148 |
| 6. Calcanail hollow reamer Ø10 L105.....                  | ref. 267 055 | 13. K-wire Ø3.2 L 200 mm (x2).....                  | ref. 267 527 |                                                     |              |
| 7. Short K-wire with stopper Ø3,2 Calcanail Ø12.....      | ref. 267 777 | 14. K-wire for cannulated screws Ø1.6 L 200 mm..... | ref. 266 158 |                                                     |              |

## OPTION FOR VERY DENSE BONE:

1. Guide K-wire Ø2.4 Lg 250 (x2).....ref. 264 586
2. Cannulated drill bit Ø12 Ø2.4 Lg 180.....ref. 271 315



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