

## Angle-stable Foot plate system Pedus-0 and Pedus-U



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## Angle-stable Pedus-O foot plate system

#### 1. Product characteristics

Angular Stability.

Combination holes make it possible to use screws with and without angular stability.

Titanium screws and plates.

Special surface treatment involving type II anodisation of plates and angle-stable screws. This results in:

- reduced tendency to cold welding when screws are turned into the plate
- hardened titanium surface
- implants have improved fatigue resistance
- significant reduction in Al and V release

High stability with small implant dimensions.

#### 2. Advantages of Basis Osteotomy

Metaphyseal osteotomy with large cancellous mating surfaces.

Good correction possibilities; depending on the metatarsal index, addition (open wedge) or subtraction.

 $Good\ combination\ possibilities\ with\ other\ interventions.$ 

#### 3. Indications

Hallux valgus with persistent complaints

-Pseudoexostosis

- -Large toe basal joint
- Intermetatarsal angle > 12°

No severe arthrosis in the large toe basal joint. With slight arthrosis, subtraction osteotomy is preferred with plantarization of the metatarsal I, in order to avoid increased pressure on the joint.

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#### 2. Indications

Arthrodesis of the calcaneocuboidal joint Arthrodesis of the tarsometatarsal joint Extension osteotomy of the calcaneus Fractures in the back and middle foot Closing osteotomies



#### **Dimensions of the Pedus-O implants**

- Thread diameter: 2.30 mm
- Core diameter: 1.60 mm
- Pitch:
- . .....

Material:

Inner hexagon:

Plate thickness:

- Screw lenght: 12 to 26 mm
- Base width of plate:
  - 1.1 mm

0.60 mm 2.00 mm

0 to 5 mm

Ti6Al4V;Eli (ISO 5832-3)



#### **Dimensions of the Pedus-U implants**

•	Thread diameter:	2 30 mm
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- Core diameter: 1.60 mm
- Pitch: 0.60 mm
- Inner hexagon: 2.00 mm
- Screw lenght: 12 to 26 mm
  - Plate thickness: 1.2 mm
- Material:

Ti6Al4V;Eli (ISO 5832-3)

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## OP Technique Basis-Osteotomy (open wedge)

#### 1. Access

After mobilising the lateral sesamoid bones, an incision is made to the base of the proximal phalanx (*Fig. 1*). Next, sharp dissection at the articular capsule of the pseudoexostosis.

Initially, there is no distal operation to the bone.



#### 2. Osteotomy

This is followed by an osteotomy approx. 10 mm distally from the tarsometatarsal I joint. The lateral corticalis is not cut in this process (*Fig. 2*).

**Note:** The lateral corticalis determines the direction of The correction.

- Exact lateral  $\rightarrow$  horizontal correction
- Plantar lateral  $\rightarrow$  simultaneous plantarization

If the metatarsal I is too long, a closing osteotomy can be performed alternatively.

For this, the proximal metatarsal I can be completely cut near the base, and a lateral basal wedge removed from the saw cut. Repositioning is followed by osteosynthesis with the Pedus-O plate without a base or a Pedus-U plate. This is placed in the medioplantar position.

The advantage of this is that dorsalization of the metatarsal I can be reliably avoided.

Contrary to a dorso-lateral plate, plantar-medial positioning compresses the osteotomy when weight is put on the feet.

#### Opening the osteotomy

Next, the osteotomy is carefully spread open with small chisels (*Fig. 3*).

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## Plate insertion

#### 4. Plate insertion

The plate is now inserted with the corresponding base (*Fig. 4*). As a rule, the plate is stabilized without any further fixation.

If required, the plate can be temporarily fastened with a K-wire (*Fig. 4*).

**Note:** The holes for the angle-stable screws should Line up so that the plate lies flat on the bone.



#### 5. Drilling for the first angle-stable screw

Next, the guide Ø 1.7 mm (REF:12.20060.031) is screwed into the plate (*Fig. 5*).

Then, a test of the exact placement of the plate is done with an image magnifier.

Next, the drill bit  $\emptyset$  1.7 mm (REF:12.20010.017) is used to drill the bone out bi-cortically through the guide tube (*Fig.* 6).

## Plate insertion

#### • 6. Screw length determination

The length of the screw is measured using the screwlength measuring tool (REF:02.20100.038). In this process, the measuring device is placed directly on the plate (*Fig. 7*).



#### 7. Inserting the first angle-stable screw

Now the first angle-stable screw is inserted using the screwdriver SW 2.0 mm (REF:12.20040.020) and handle (REF:02.20050.010). (*Fig. 8*).

#### 8. Inserting the second angle-stable screw.

Before the second angle-stable screw can be screwed in, points 5 + 6 must be repeated for the second drill hole. Next, the second angle-stable screw is inserted (see Point 7). (*Fig. 9*).

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## Plate insertion

#### 9. Inserting the remaining screws

The remaining screws are inserted in the plate as in points 5-8. (*Fig. 10*).

**Note:** The second screw proximally and distally can be inserted with or without angular stability. The use of screws which do not have angular stability is particularly recommended when the curvature of the plate is somewhat less than the curvature of the bone.

In this situation, the screw which does not have angular stability fixes the raised plate, i.e., with a screw of this type, the plate is gradually pulled towards the bone.

Next, the pseudoexostosis is resected.

#### 10. Filling up with spongious plastic

When all the screws are fastened, the osteotomy space is filled with cancellous chips (*Fig. 11*) which were obtained from the pseudoexostosis. The use of autologous cancellous or bone

replacement materials is possible, but experience has shown that this is not necessary.

If necessary, distal procedures on the soft tissue and bone can be carried out at this time in order to ensure a centered joint.

#### 11. End of operation and post-op treatment

Finally, a medial capsuloplasty is carried out. Layered wound dressing is done with a bandage while fixing the compression.

#### Post-operative care:

Until the bone is consolidated, a forefoot relief shoe must be worn for 6-8 weeks

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- Mobilisation of the large toe main joint with a
- Kramer-bandage
- Bandage toes for 6 weeks
- Wear a hallux night splint for 3 months



## Complication management

#### 1. Break of the lateral corticalis

A break of the lateral corticalis can occur, especially in bones afflicted by severe osteoporosis. It is possible to temporarily fix the metatarsal I to the metatarsal II with a K-wire in the desired position. Most of the time, a angle-stable implant can provide sufficient stability to permit removal of the K-wire.

Alternatively, there is the possibility of giving additional stability to the osteotomy with a K-wire. The wire can be removed after 6-8 weeks through a stab incision.

#### 2. The cancellous bone gained from resecting the pseudoexostosis is not sufficient to fill the osteotomy gap In principle, it is possible to obtain and use autologous cancellous from the iliac crest or the distal tibia. Alternatively,

artificial bone material can be used. Experience has shown that the osteotomy gap closes within 6-8 weeks even when the gap is only loosely filled with some chips.

### Operating technique using the Pedus-U angle-stable foot plate system

The angle-stable Pedus-U system consists of a flexible 4-hole plate system which is used primarily in arthrodesis of the calcaneocuboidal joint, arthrodesis of the tarsometatarsal joint, extension osteotomy of the calcaneus, fractures in the back and middle foot, as well as for closing osteotomies.

After opening and repositioning, the plate is positioned on the bone.

In some cases, the plate can be temporarily fixed with a K-wire.

**Note:** The holes for the angle-stable screws should line up so that the plate lies flat on the bone. Finally, the drillguide is screwed in as in the surgical technique of basis osteotomy (Point 5 to 9), the core hole drilled, the length of the screw determined, and the screws screwed in.



## Implants

Pedus-O Plates	Article no.	Base width
	12.11121.000	0 mm
	12.11121.002	2 mm
	12.11121.003	3 mm
0.0	12.11121.004	4 mm
	12.11121.005	5 mm
	12.11121.006	6 mm

Angle-stable cortical screwsØ 2.3 mm; self-tapping



Article no.	length
12.03423.012	12 mm
12.03423.014	14 mm
12.03423.016	16 mm
12.03423.018	18 mm
12.03423.020	20 mm
12.03423.022	22 mm
12.03423.024	24 mm
12.03423.026	26 mm

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 Pedus-U Plates
 Article no.
 Plate length

 12.11122.012
 19 mm

 12.11122.014
 21 mm

 12.11122.016
 23 mm

 12.11122.018
 25 mm

 12.11122.020
 27 mm

## Cortical screws Ø 2.3 mm; self-tapping



Article no	Screw length
12.03424.012	12 mm
12.03424.014	14 mm
12.03424.016	16 mm
12.03424.018	18 mm
12.03424.020	20 mm
12.03424.022	22 mm
12.03424.024	24 mm
12.03424.026	26 mm

# Angle-stable Pedus-O and Pedus-U foot plate system





Description	Article number
Graphics cassette with implant track	12.22130.150
Implant track	12.22130.012
Cover for implant track	12.22130.003

#### INSTRUMENTS IN THE SET

Description	Article number
Reduction forceps (foot)	12.20070.160
Screw holding forceps	02.20120.015
Screwdriver SW 2.0 mm	12.20040.020
Drill guide Ø1.7 mm	12.20060.031
Handle with quick connect	02.20050.010
Double drill guide Ø1,7mm / Ø2.0 mm	12.20060.017
Drill bit Ø1.7 mm	12.20010.017
Screw length measuring device	02.20100.038
K-wire Ø1.2 x 70 mm; trocar/round	11.90012.070



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