

## PEDUS-R Rearfoot Plating System



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**Note:**

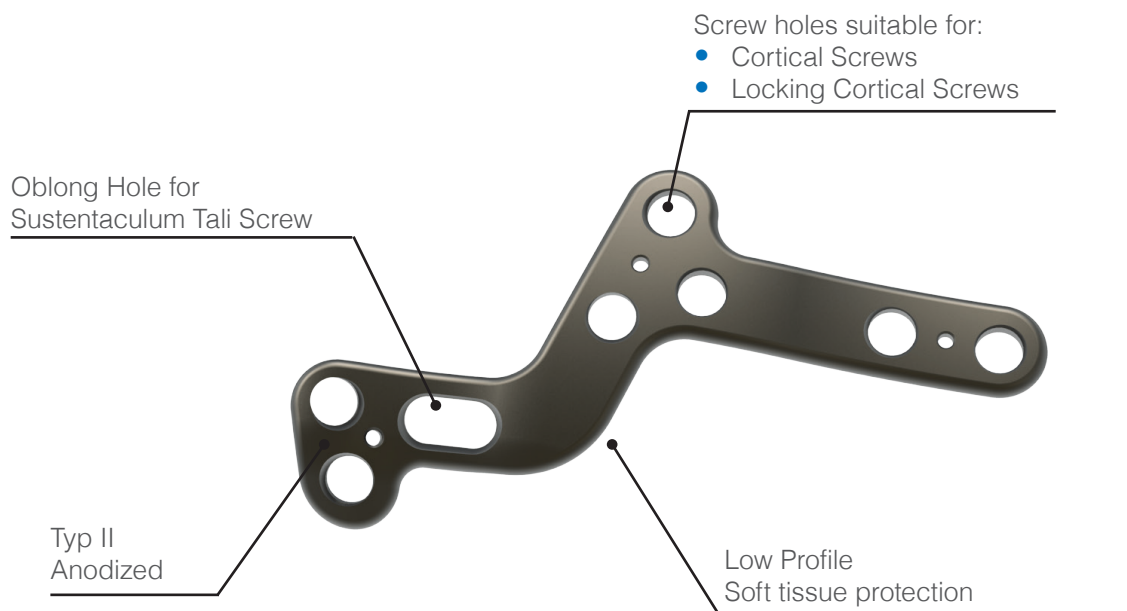
The surgical technique outlined below reflect the surgical procedure usually chosen by the clinical advisor. However, each surgeon must decide which surgical method and which approach is the most successful for his patient.

## ► Surgical Technique PEDUS-R MIS WS Calcaneus Plate

### PEDUS-R MIS WS Calcaneus Plate

#### Product Specifications:

- Plate size: short and long
- Side-specific anatomical shape for the right and left foot



#### Indication

- Fixation of calcaneal fractures

## 1. Access and Resection

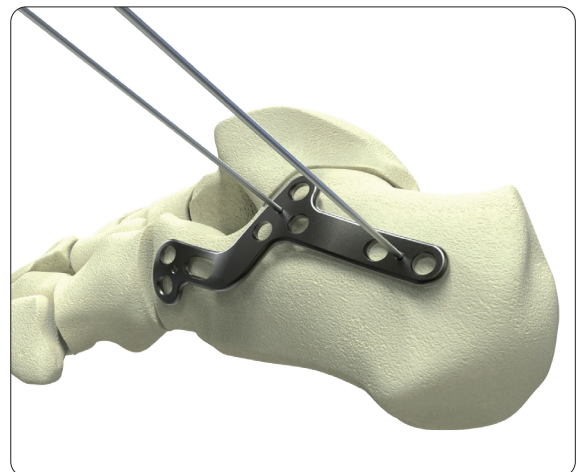
- Access is obtained via an approx. 5 to 8 cm skin incision above the sinus tarsi. Starting from the fibula head, work over the anterior part of the calcaneus, the peroneal tendons and up to the calcaneocuboid joint.
- The sural nerve and the peroneal tendon sheath remain undamaged in the process.

## 2. Implant Selection and Positioning

### Instruments

REF 11.90012.070      Kirschner Wire Ø 1.2 mm, L 70 mm

- The posterior plate end is inserted through the skin incision until the plate lies in the required position above the calcaneus.
- The position of the plate can then be determined with the image intensifier.
- Afterwards the plate is temporarily fixed K-wires.



## 3. Fixation of the Plate by the Oblong Hole - K-wire placement

### Screw selection:

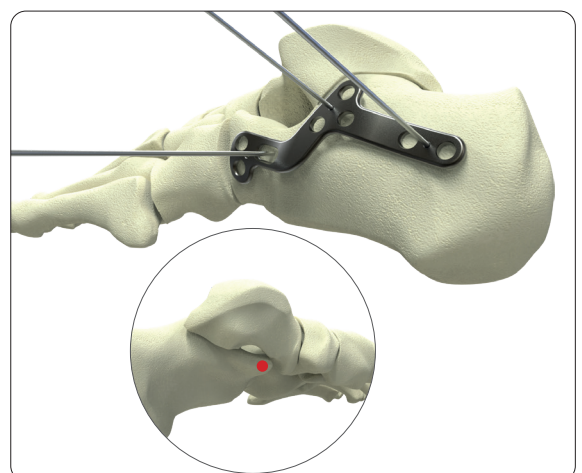
- The plate can be fastened in the oblong hole with a cannulated screw Ø 4.0 mm. Alternatively, a cortical screw Ø 3.5 mm can be used.

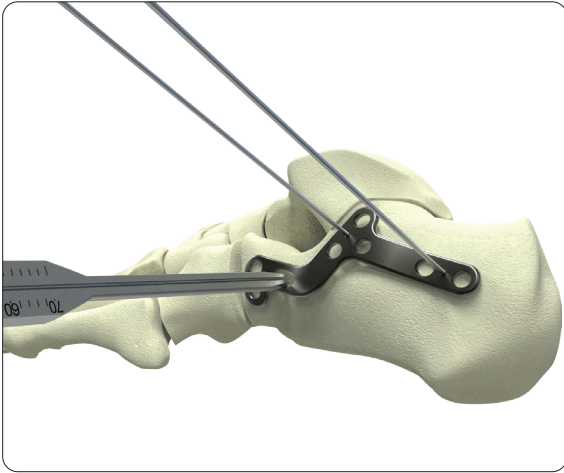
### Instruments

REF 11.90212.150      Kirschner Wire Ø 1.2 mm, L 150 mm

### Use of a Ø 4.0 mm cannulated screw

- First, the screw position is determined with the aid of the K-wire.
- The entry point of the K-wire is in the middle of the oblong hole and should end in the sustentaculum tali.
- With the aid of a C-arm, the correct position of the K-wire is then checked.

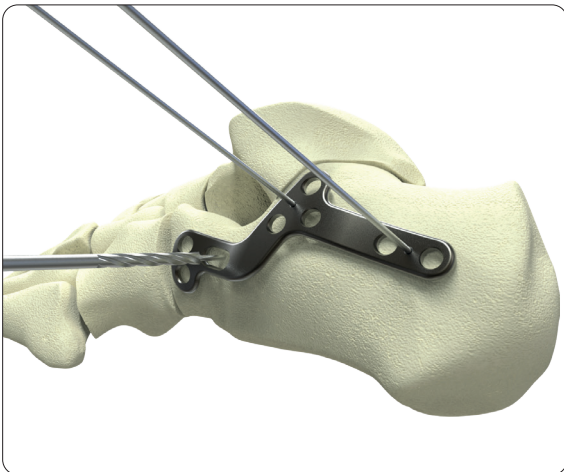




#### **Fixation of the Plate by the Oblong Hole - Measuring Instruments**

*REF 08.20100.035      Length Determination Instrument, for K-Wire Ø 1.2 mm x 150 mm*

- The required screw length is determined using the length determination instrument via the inserted K-wire.
- The screw length is calculated as follows: add 2 mm to the value read off at the end of the K-wire (as the length determination instrument sits directly on the bone and not on the plate surface).

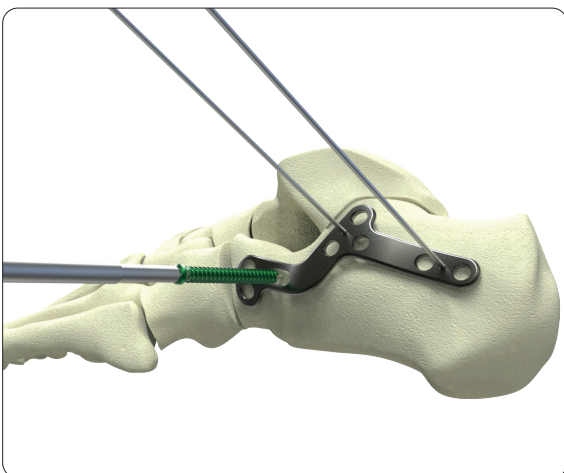


#### **Fixation of the Plate by the Oblong Hole - Drilling**

##### **Instruments**

*REF 08.20010.027(S)      Drill Bit Ø 2.7 mm*

- The cannulated drill bit is then pushed forward over the K-wire until it reaches the bone, and then the screw hole is drilled.



#### **Fixation of the Plate by the Oblong Hole - Screwing**

##### **Instruments**

*REF 08.20040.025      Screwdriver, hex 2.5 mm*

- The corresponding screw is then inserted via the K-wire with the cannulated screwdriver.
- Final tightening of the cannulated screw should not be performed until after correction and final positioning of the plate.
- Take an X-ray image to check the length and position of the screw in both planes.

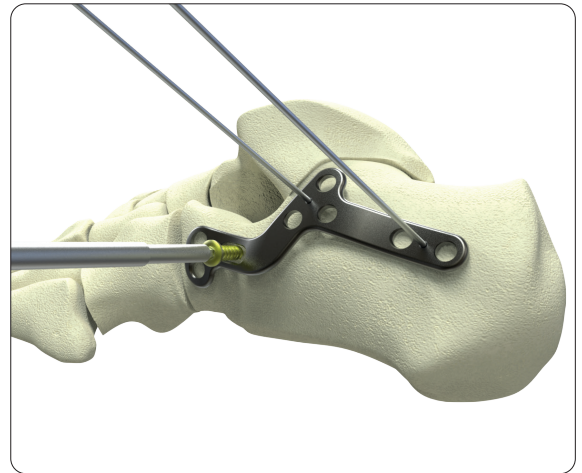


### Fixation of the Plate by the Oblong Hole - Using a Ø 3.5 mm Cortical Screw

#### Instruments

REF 03.20010.425	Drill Bit Ø 2.5 mm
REF 03.20060.025	Double Drill Guide 3.5 / 2.5
REF 03.20040.025	Screwdriver, hex 2.5 mm
REF 03.20100.060	Length Determination Instrument, for Screw up to 60 mm

- The screw hole is pre-drilled bicortically via the double drill guide using the drill bit.
- The length is measured bicortically using the length determination instrument.
- Afterwards the corresponding cortical screw is inserted with the screwdriver.
- Final tightening of the screw should not be performed until after correction and final positioning of the plate.



### Fixation of the Plate by the Oblong Hole - Plate positioning

- If necessary, the position of the plate can be corrected via the length of the oblong hole.
- When the plate is exactly aligned on the bone, final tightening of the cannulated screw is performed.
- Afterwards the plate position and the screw length are checked with the aid of an X-ray.

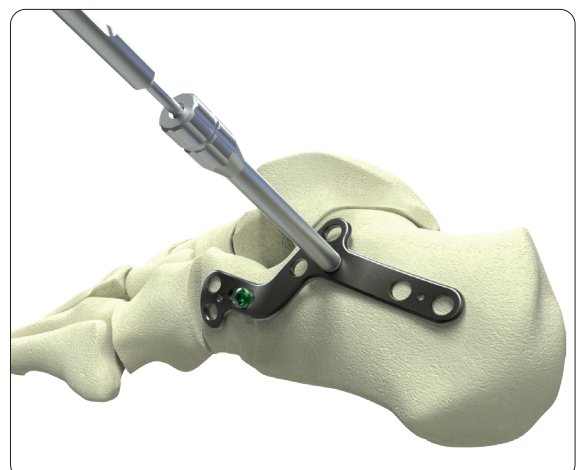


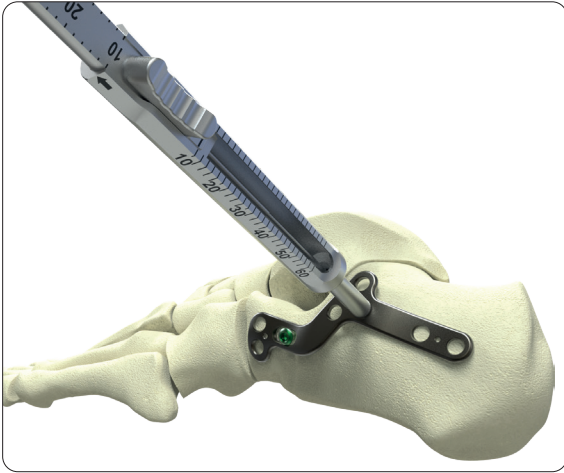
## 4. Fixation of the Plate with Locking Screws - Drilling

#### Instruments

REF 10.20010.020	Drill Bit Ø 2.0 mm
(REF 03.20010.425	Drill Bit Ø 2.5 mm)
REF 03.20060.015	Drill Guide 2.0
(REF 03.20060.020	Drill Guide 2.5)

- For Ø 3.0 mm (Ø 3.5 mm) locking screws the drill guide Ø 2.0 mm (drill guide Ø 2.5 mm) is screwed into the screw hole that is to be used.



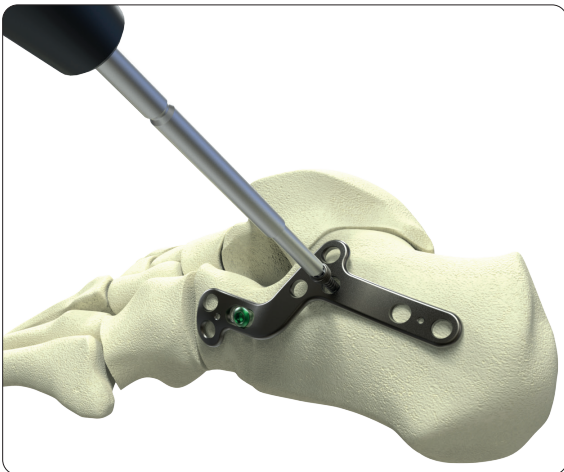


### Fixation of the Plate with Locking Screws - Measuring

#### Instruments

REF 03.20100.060      *Length Determination Instrument,  
for Screw up to 60 mm*

- To determine the required screw length the length determination instrument must be used.
- The length determination instrument is placed directly on the plate and after hooking onto the opposite cortical bone the value can be read off.



### Fixation of the Plate with Locking Screws - Screwing

#### Instruments

REF 03.20040.025      *Screwdriver, hex 2.5 mm*

- After determination of the required screw lengths, the corresponding locking screw is inserted with the screwdriver.



- Afterwards, all locking screw holes on the plate are filled.
- Here, the procedure for inserting the screws described in point 4 is followed.
- Finally, a radiological check is performed in both planes.



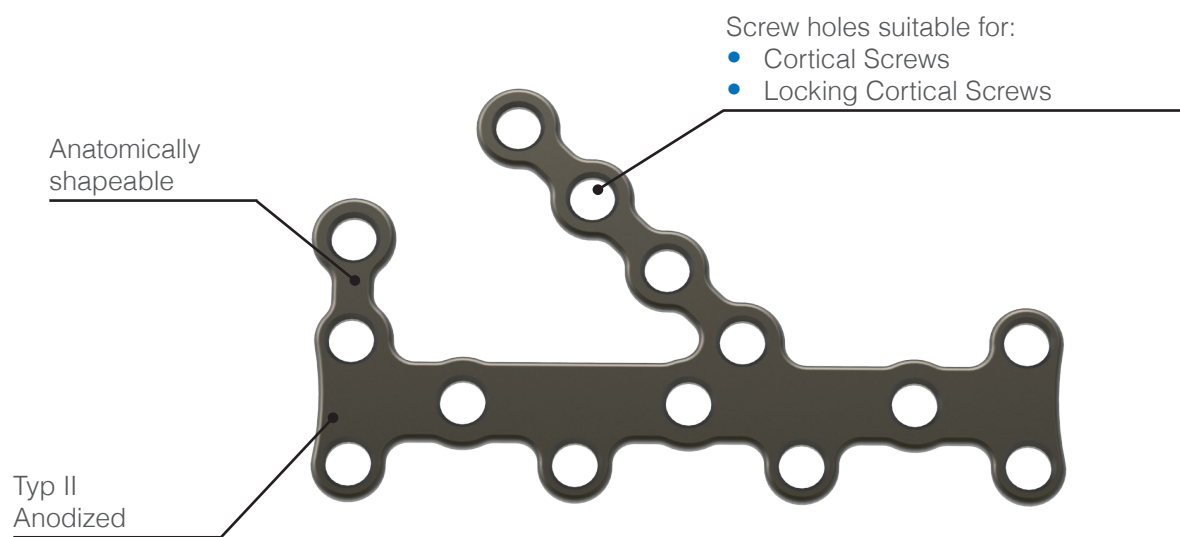


## ► Surgical Technique PEDUS-R WS Calcaneus Plate

### PEDUS-R WS Calcaneus Plate

#### Product Specifications

- 3 different plate sizes
- Symmetrical plate geometry suitable for the right and left foot



#### Indication

- Fixation of fractures and osteotomies of the calcaneus

## 1. Access and Resection

- Perform a right-angled, lateral skin incision.
- The vertical part of the skin incision should run close to the Achilles tendon and extend to the plantar and lateral areas of the skin.
- The calcaneocuboid joint can be reached by extending the skin incision in the distal direction.
- Continue the skin incision at the same angle down towards the bone, so that afterwards a single, complete flap can be lifted off the periosteal surface.

## 2. Implant Selection and Positioning

### Instruments

REF 11.90012.070      Kirschner Wire Ø 1.2 mm, L 70 mm

- The plate is placed in the required position on the calcaneus.
- Here, the plate can be anatomically adapted to the bone.
- Afterwards the plate is temporarily fixed with K-wires.
- The position of the plate can then be determined with the image intensifier.

## 3. Fixation of the Plate

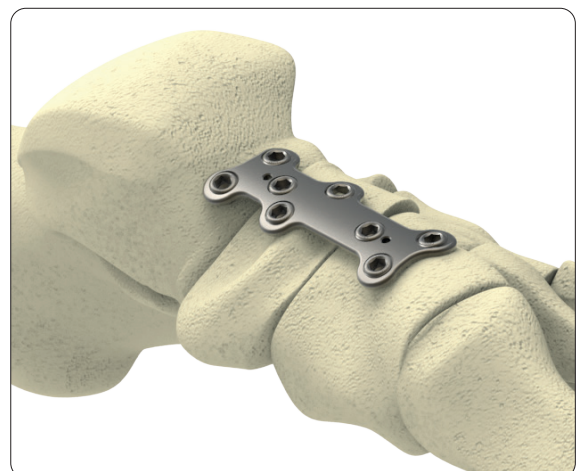
- The plate is secured with locking screws.
- The steps for drilling, measuring the screw length and fixing are the same as step 4 in the PEDUS-R MIS surgical technique (see above)



### PEDUS-R WS Universal Plate

**Indication:** Fixation of fractures, osteotomies and joint fusions at the midfoot and rearfoot

- The locking universal plate is also secured with locking screws.
- The steps for drilling, measuring the screw length and fixing are the same as step 4 in the PEDUS-R MIS surgical technique (see above).



## ► Product Information

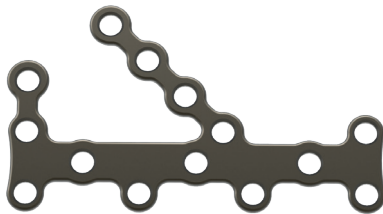
### Implants



#### **PEDUS-R MIS WS Calcaneus Plate**

- Plate thickness: 1.6 mm
- Material: Ti6Al4V

Article Number *	Size	Orientation
12.11260.010	S	right
12.11260.110	S	left
12.11260.020	L	right
12.11260.120	L	left



#### **PEDUS-R WS Calcaneus Plate**

- Plate thickness: 1.5 mm
- Material: Titanium

Article Number *	Length
12.11241.160	60 mm
12.11241.170	70 mm
12.11241.180	80 mm



#### **PEDUS-R WS Universal Plate**

- Plate thickness: 1.6 mm
- Material: Titanium

Article Number *	Hole	Length
12.11123.024	4	23.5 mm
12.11123.045	6	45.0 mm
12.11123.055	8	55.0 mm
12.11123.076	12	76.0 mm

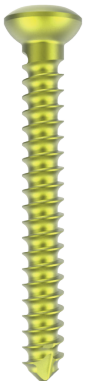
\* All implants are also available in sterile. Therefor, add suffix "S" to article number.

Article Number Ø 2.7 mm	Article Number Ø 3.5 mm	Length (mm)
03.03527.010	03.03612.010	10
03.03527.012	03.03612.012	12
03.03527.014	03.03612.014	14
03.03527.016	03.03612.016	16
03.03527.018	03.03612.018	18
03.03527.020	03.03612.020	20
03.03527.022	03.03612.022	22
03.03527.024	03.03612.024	24
03.03527.026	03.03612.026	26
03.03527.028	03.03612.028	28
03.03527.030	03.03612.030	30
03.03527.032	03.03612.032	32
03.03527.034	03.03612.034	34
03.03527.036	03.03612.036	36
03.03527.038	03.03612.038	38
03.03527.040	03.03612.040	40
03.03527.045	03.03612.045	45
03.03527.050	03.03612.050	50

### Cortical Screw, self-tapping

- Thread diameter:
- Core diameter:
- Head diameter:
- Hexagon socket:
- Material:

Ø 2.7 mm	Ø 3.5 mm
2.7 mm	3.5 mm
1.9 mm	2.4 mm
5.0 mm	6.0 mm
2.5 mm	2.5 mm
Ti6Al4V	Ti6Al4V

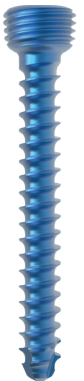


Article Number Ø 3.0 mm	Article Number Ø 3.5 mm	Length (mm)
10.03530.010	03.05612.010	10
10.03530.012	03.05612.012	12
10.03530.014	03.05612.014	14
10.03530.016	03.05612.016	16
10.03530.018	03.05612.018	18
10.03530.020	03.05612.020	20
10.03530.022	03.05612.022	22
10.03530.024	03.05612.024	24
10.03530.026	03.05612.026	26
10.03530.028	03.05612.028	28
10.03530.030	03.05612.030	30
10.03530.032	03.05612.032	32
10.03530.034	03.05612.034	34
10.03530.036	03.05612.036	36
10.03530.038	03.05612.038	38
10.03530.040	03.05612.040	40
	03.05612.042	42
	03.05612.044	44
10.03530.045		45
	03.05612.046	46
	03.05612.048	48
10.03530.050	03.05612.050	50

### Locking Cortical Screw, self-tapping

- Thread diameter:
- Core diameter:
- Head diameter:
- Hexagon Socket:
- Material:

Ø 3.0 mm	Ø 3.5 mm
3.0 mm	3.5 mm
1.9 mm	2.4 mm
4.75 mm	4.75 mm
2.5 mm	2.5 mm
Ti6Al4V	Ti6Al4V







**Cannulated Screws Ø 4.0 mm,  
short thread, self-drilling**

- Thread diameter: 4.0 mm
- Core diameter: 2.6 mm
- Head diameter: 5.0 mm
- Hexagon socket: 2.5 mm
- Material: Ti6Al4V

Article Number	Length
08.03644.020	20 mm
08.03644.022	22 mm
08.03644.024	24 mm
08.03644.026	26 mm
08.03644.028	28 mm
08.03644.030	30 mm
08.03644.032	32 mm
08.03644.034	34 mm
08.03644.036	36 mm
08.03644.038	38 mm
08.03644.040	40 mm
08.03644.042	42 mm
08.03644.044	44 mm
08.03644.046	46 mm
08.03644.048	48 mm
08.03644.050	50 mm



**Cannulated Screws Ø 4.0 mm,  
fully thread, self-drilling**

- Thread diameter: 4.0 mm
- Core diameter: 2.6 mm
- Head diameter: 5.0 mm
- Hexagon socket: 2.5 mm
- Material: Ti6Al4V

Article Number	Length
08.03640.020	20 mm
08.03640.022	22 mm
08.03640.024	24 mm
08.03640.026	26 mm
08.03640.028	28 mm
08.03640.030	30 mm
08.03640.032	32 mm
08.03640.034	34 mm
08.03640.036	36 mm
08.03640.038	38 mm
08.03640.040	40 mm
08.03640.042	42 mm
08.03640.044	44 mm
08.03640.046	46 mm
08.03640.048	48 mm
08.03640.050	50 mm

Instruments

11.90012.070	Kirschner Wire Ø 1.2 mm, trocar tip, L 70 mm, stainless steel
11.90012.150	Kirschner Wire Ø 1.2 mm, trocar tip, L 150 mm, stainless steel
11.90212.150	Kirschner Wire Ø 1.2 mm, threaded tip, L 150 mm, stainless steel
10.20010.020	Drill Bit Ø 2.0 mm, AO Coupling, L 112 / 84 mm
03.20010.425	Drill Bit Ø 2.5, scaled, AO Coupling, L 160 / 130 mm
08.20010.027(S)	Drill Bit Ø 2.7 / 1.35 mm, cannulated, AO Coupling, L 160 / 130 mm
03.20060.015	Drill Guide 2.0 for WS Plates
03.20060.020	Drill Guide 2.5 für WS Plates
12.20060.017	Double Drill Guide 2.0 / 1.7
03.20060.025	Double Drill Guide 3.5 / 2.5

08.20120.135	Cleaning Wire Ø 1.2 mm, L 200 mm
08.20100.035	Length Determination Instrument for Kirschner Wire Ø 1.2 mm x 150
03.20100.060	Length Determination Instrument for Screws up tp 60 mm
03.20040.125	Screwdriver Shaft, hex 2.5 mm, AO Coupling, L 100 / 70 mm
03.20040.025	Screwdriver, hex 2.5 mm, L 200/85 mm
08.20040.025	Screwdriver, hex 2.5 mm, cannulated, L 199 / 89 mm
03.20040.026	Holding Sleeve for Screws Ø 2.7 - 4.0 mm
02.20120.015	Screw Forceps, self-holding

Templates



PEDUS-R MIS WS  
Calcaneus Plate

Article Number	Size	Orientation
12.21260.010	S	right
12.21260.110	S	left
12.21260.020	L	right
12.21260.120	L	left



## MRI Safety Information

Non-clinical testing has demonstrated that the plates range from Marquardt Medizintechnik is MR Conditional in accordance with the ASTM F2503-20 standard definitions. A patient with this device can be safely scanned in an MR system meeting the following conditions:

- Cylindrical-bore
- Horizontal magnetic field ( $B_0$ )
- Spatial field gradient lower than or equal to
  - **1.5 T:** 23.45 T/m (2345 G/cm)
  - **3.0 T:** 11.75 T/m (1175 G/cm)
- Radiofrequency (RF) field exposure:
  - RF excitation: Circularly Polarized (CP)
  - RF transmit coil: whole-body transmit coil
  - RF receive coil type: whole-body receive coil
  - Maximum permitted whole-body averaged specific absorption rate (SAR): Normal Operating Mode, 2 W/kg.
  - Scan duration and wait time:
    - 1.5 T:** 2 W/kg whole-body average SAR for **8min and 15s** of continuous RF (a sequence or back-to-back series/scan without breaks) followed by a wait time of **8min and 15s** if this limit is reached.
    - 3.0 T:** 2 W/kg whole-body average SAR for **6min and 19s** of continuous RF (a sequence or back-to-back series/scan without breaks) followed by a wait time of **6min and 19s** if this limit is reached.
- The plates are expected to produce a maximum temperature rise of 8.5 °C at 1.5 T and 6.9 °C at 3 T both after the scanning periods presented above.
- The presence of this implant may produce an image artifact. Some manipulation of scan parameters may be needed to compensate for the artifact. In non-clinical testing, the image artifact caused by the device extends approximately 83 mm from the device edge when imaged with a spin echo pulse sequence and 65 mm with a gradient echo, both at 1.5 T.
- Patients with uncompromised thermoregulation and under uncontrolled conditions or patients with compromised thermoregulation (all persons with impaired systemic or reduced local thermoregulation) and under controlled conditions (a medical doctor or a dedicated trained person can respond instantly to heat induced physiological stress).

### Note:

Undergoing an MRI scan, there is a potential risk for patients with a metallic implant. The electromagnetic field created by an MRI scanner can interact with the metallic implant, resulting in displacement of the implant, heating of the tissue near the implant, or other undesirable effects.





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