

INTEGRANT ANTERIOR ANKLE FUSION SET



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Design Rationale

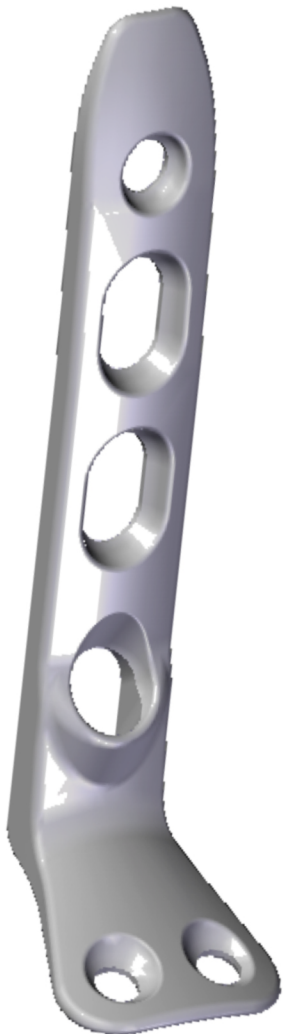
The Hawk Anterior Ankle Fusion set includes one Hawk Anterior Ankle Fusion plate and 63 variable screw options. One screw of each of the 3 diameters and 21 different lengths listed below.

Features

- Low profile
- Home run screw option
- Used for primary and revision
- Able to change intra operatively
- Able to withstand delayed fusion
- Anatomically contoured to the tibiotalus surface
- 6 hole plate
- 6 portals with rounded edges to allow for angular variation in screw orientation
- 3 screw diameters
- 21 different lengths



Indications and Contraindications



- Indications
- Primary Arthrodesis
- Traumatic Ankle Fractures
- Pan-talar Arthrodesis
- Revision Arthrodesis
- Failed Total Ankle Replacement
- Charcot Joint
- End Stage Osteoarthritis
- Rheumatoid Arthritis

Sample Cases

Patient 1



Pre Operative



Post Operative 4 Weeks



Post Operative 3 Months

Patient 2



Pre Operative



Post Operative 4 Weeks



Post Operative 4 Months

Surgical Technique

Surgical Technique for Anterior plating of Tibia

The anterior approach to the ankle has been popularised in total ankle replacements. The technique itself is relatively straight forward. The problem is related to poor wound healing. We have not encountered problems with poor wound healing using the described technique below.

It is important not to undermine the wound edges nor to handle them excessively in the approach, thereby minimising the trauma to the skin edges.

Further, a period of immobilisation and elevation following the procedure will limit problems with healing. We have found that there are less wound healing problems in fact with the anterior incision than with the lateral incision. Particularly when this was combined with excision of the fibula.

Positioning of Patient

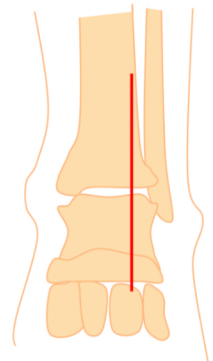
Patient lies supine on the operating table. Thigh tourniquet or mid calf tourniquet has been employed. The leg is exsanguinated.

If a thigh tourniquet is used 350mm of pressure mid calf tourniquet pressure 250mm is regularly employed. A sand bag is placed under the buttock, allowing the ankle to point forwards.

In some circumstances the iliac crest will also be prepped to obtain a bone graft. The bone graft can also be obtained from the proximal tibia, which in many respects is preferable unless a structural graft is required, especially in the presence of a substantial loss of the talar body.

Landmark and Incision

The medial malleolus and the tibialis anterior can be palpated. An incision is made just lateral to the tibialis anterior as seen in diagram 1. The incision is 12cm-15cm long at the anterior aspect of the ankle joint. The midpoint of the incision should be at the ankle joint. The incision is extended dorsally and distally. Initially only skin should be incision and then blunt dissection is made down through the fat to the anterior aspect of the Diagram1 ankle joint.



Internervous plane

There is no true internervous plane here. The extensor hallucis longus and the extensor digitorum longus lie in an intermuscular plane. These are both supplied by the deep peroneal nerve. Caution should be employed in avoiding deviation to one side or the other. This intermuscular plane can be used because the nerve supply to these muscles is well proximal to the level of the incision.

Surgical Technique

Superficial Dissection

The plane between the extensor hallucis longus and extensor digitorum longus is employed. The branch of the superficial peroneal nerve, which generally is not seen and generally we would not look for it rather than taking care in our direct exposure down to the extensor hallucis longus retinaculum.

The extensor hallucis longus and tibialis anterior are retracted and the dorsal capsule of the ankle joint is exposed.

Deep Surgical Dissection

The capsule is incised in a linear fashion. Once this has occurred it is lifted by use of a bone dissector of the anterior aspect of the tibia. The dorsal capsule is elevated.

The anterior aspect of the talus and tibia are then exposed. Curved shwan neck homans are then placed over the medial malleolus and also the lateral malleolus, allowing exposure. Self retainers are used in the deep structures on occasions in order to allow a continued retraction. The edges never essentially receive any traction on them.

Method

Dissection down to talo-tibial joint exposure, decorticate the joint using 4mm rose bud burr, curette, k-wires. Assistance with joint distraction can be achieved with a joint distracter (hintermann) Lateral , point drill 1.1mm (Spot weld).

Plate Selection

Select desired angle of the plate. Further joint contouring may be required over the anterior tibia, a groove can be cut here if required with the burr, or saw. This is very similar to window as used in many joint replacements.



Diagram 2



Diagram 3

Fusion Position

It is recommended fluoroscopy be taken with the insertion of a joint stabilising wire or screw direct posteriorly. Ensure joint surfaces are anatomical and progress fixation of the plate.

Surgical Technique

Screw Placement

The home run screw is inserted first as shown in diagram 2. Placement for the screw is recommended to be directed into the calcaneus.

The 2 talar screws are then inserted marked in the diagram as 3. These screws lock into and compress the plate down over the joint and provide for a rigid work base for the remaining screws to be implanted. The screws inserted into the talus are directed into the calcaneus through the talus. This ensures the subtalar joint is securely fused to the talar surface.

Following this as seen in diagram 4, the tibial compression screws are inserted neatly fixing the device along the tibial with minimal protrusion from the device.

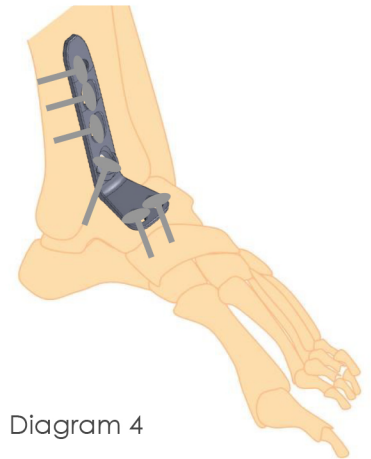


Diagram 4



Diagram 5

A bone growth stimulator and cancellous iliac crest bone grafting is recommended in cases where Diabetes, Rheumatoid disease, joint neuropathy and Charcot joint disease, severe deformity and severe end stage osteoarthritis is present.

Screws needed for Superior Fusion Plate Fixation

Please refer to diagram 5

Home Run Screw x 1— Hawk 6.5mm diameter self-tapping screw approximately 60-100mm in length

Talar screws x 2— Hawk 4.5 diameter Locking self-tapping screw approximately 35-40mm in length

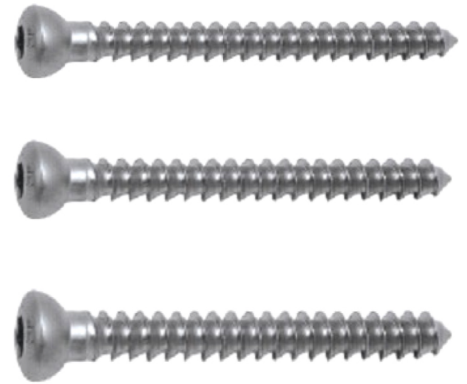
Tibial screws x 2— Hawk 4.5mm diameter self-tapping screw approximately 40-60mm in length

Tibial screws x 1— Hawk 4.5mm diameter Locking self-tapping screw approximately 40-60mm in length

Implant Specifics

Hawk Anterior Ankle Fusion Screws

LENGTHS	4.5 mm Locking	4.5mm	6.5mm
35mm	# LS3535	# FS4535	# FS6535
37mm	# LS3537	# FS4537	# FS6537
39mm	# LS3539	# FS4539	# FS6539
41mm	# FS3541	# FS4541	# FS6541
43mm	# LS3543	# FS4543	# FS6543
45mm	# LS3545	# FS4545	# FS6545
47mm	# LS3547	# FS4547	# FS6547
49mm	# LS3549	# FS4549	# FS6549
50mm	# LS3550	# FS4550	# FS6550
55mm	# LS3555	# FS4555	# FS6555
60mm	# LS3560	# FS4560	# FS6560
65mm	# LS3565	# FS4565	# FS6565
70mm	# LS3570	# FS4570	# FS6570
75mm	# LS3575	# FS4575	# FS6575
80mm	# LS3580	# FS4580	# FS6580
85mm	# LS3585	# FS4585	# FS6585
90mm	# LS3590	# FS4590	# FS6590
95mm	# LS3595	# FS4595	# FS6595
100mm	# LS35100	# FS45100	# FS65100
105mm	# LS35105	# FS45105	# FS65105
110mm	# LS35110	# FS45110	# FS65110



Hawk AnteHawk Anterior Ankle Fusion Plate

FP1000

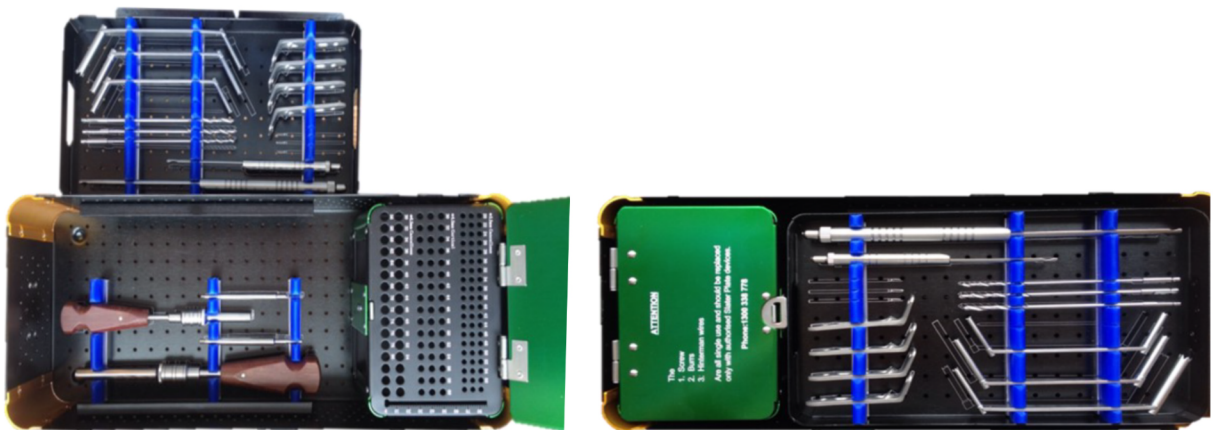


Instruments and Implant Set

Instrument Case, for 6.5mm Cannulated screw instruments and implants

Each set includes a graphic case that houses and organises all of the set's implants and instruments in order to facilitate surgery, sterilisation and inventory control.

Instruments



Prosthesis List

Hawk Anterior Ankle Fusion Set was listed on the August 2015 Prosthesis list

Billing code: HA019

Anatomically contoured 6 hole plate and screw set for anterior fixation of the ankle joint.

Billing code: HA021

3.5mm diameter screw set lengths 35mm to 110mm

Billing code: HA020

4.5mm screw set with lengths ranging from 35mm to 110mm.

Billing code: HA022

6.5mm screw set with lengths ranging from 35mm to 110 mm.

Research

Gordon L Slater
Stephanie C
Sayres
Martin J O'Malley

"Anterior ankle arthrodesis"

World Journal Orthopaedics, 2014 January 18; 5(1): 1-5

- Contoured customised plates offer added compression and provide a rigid fixation for arthrodesis stabilization with few complications.
- Anterior plating provides enhanced compression and rigidity compared to other forms of arthrodesis
- Anterior plating is successful in achieving a high rate of fusion with few complications.



INTEGRANT

Innovative leader in biotechnology and surgical equipment