SURGICAL TECHNIQUE

Distal fibula plate Fibule

TRAUFIX
READY TO RUN

TABLE OF CONTENT

DISTAL FIBULA PLATE FIBULE

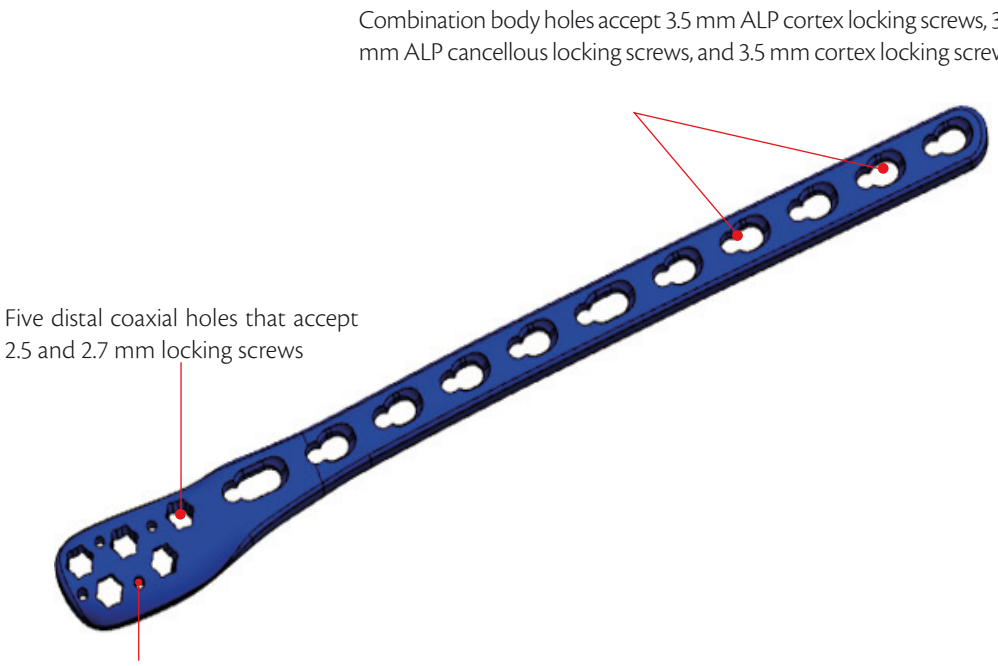
Integrated into Traufix´s Fibule plate system

The distal fibula plate Fibule accepts 1.6 mm Kirschner wires in the head.

The distal fibula plate Fibule is part of the Traufix Locking Compression Plates System, combining locking screws technology with traditional plate osteosynthesis techniques. Plates are manufactured from **Ti6Al4V ELI titanium alloy (ASTM F136**). Premium quality biocompatible alloy.

The design of the plates is anatomical in shape and low profile, both in the distal portion and in the shaft of the fibula. Variable-angle holes in the distal portion help to reach fragments at different angles thanks to 15 degrees of perimeter movement. Combination holes in the body of the Fibule Plate combine a dynamic compression hole with a locking screw hole. Combination holes provide maximum flexibility with options for axial compression and locking ability throughout the length of the plate body. Kirschner wire holes accept Kirschner wires up to 1.6 mm to provisionally fix the plate to the distal fibula, provisionally reduce joint fragments, and confirm the position of the plate relative to the distal fibula. Fibule distal fibula plate fixation offers the same benefits as traditional plate fixation methods, but with some important improvements. Locking screws allow a fixed angle assembly to be created using traditional AO techniques for plate osteosynthesis. The possibility of placing locking screws is especially important in the case of osteopenic bone, short bone fragments and multifragmental fractures, when the gripping capacity of the screws is impaired. These screws do not rely on the compression of the plate on the bone to resist the load of the patient, but function as multiple small angled plates.

Distal fibula plate Fibule



SURGICAL INDICATIONS

Indications

The distal fibula plates Fibule are indicated for the osteosynthesis of fractures, osteotomies and nonunion of the metaphyseal and diaphyseal areas of the distal fibula, especially in the case of osteopenic bone.

General contraindications

- Systemic inflammatory response syndrome (to be evaluated by the surgeon).
- Septicemia.
- Osteomyelitis.
- Patient unable to comply with post-operation care.
- Hypersensitivity to the materials (titanium).

SURGICAL TECHNIQUE DESCRIPTION

Preoperative planning

Complete the preoperative radiographic evaluation and develop the preoperative plan. Determine plate length and distal screw placement to ensure correct plate selection and position, as well as screw placement in the distal fibula.

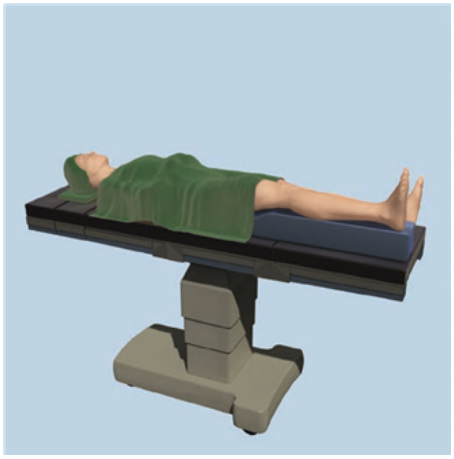
Necessary instrument boxes

Instrument box with set of left and right Fibule plates, with set of 2.5mm and 2.7mm locking screws.

Traufix small fragment basic instrument box with 3.5mm DCP and locking screws.

Patient position and approach

1.Patient positioning



Place the patient supine with a sandbag (cushion) under the buttock on the affected side. In this way, the foot is in a neutral position and normal external rotation of the leg is avoided. Elevate the leg on a padded support, with the knee slightly bent to help achieve a neutral position.

Note: The direction of the locking screws is determined by the design of the plate, based on the typical anatomical characteristics of the distal fibula. If the plate needs to be shaped by hand in the metaphyseal area, or if the implant does not conform well to the particular anatomical characteristics of the patient, the trajectory of the distal screws will be altered. Screw trajectory can be confirmed using the verification technique, with Kirschner wires.

2. Approach

Make a straight lateral or posterolateral surgical incision to expose the fibular fracture, the distal epiphysis of the fibula, and the shaft of the fibula. A lateral incision directly on the fibula can accentuate the relief of the plate, and the wound closure would be located directly on the implant.

Another possibility is to make the incision following the posterolateral edge of the fibula, which is an area with better soft tissue coverage.

Caution: Take care not to damage the musculocutaneous nerve (or superficial peroneal nerve) proximally and anteriorly, or the external saphenous nerve (or sural nerve) posteriorly.

Deep dissection allows the fibula to be exposed in length. An extra periosteal approach to the fibula from a point proximal to the fracture is generally preferred.

Implantation

1.Fracture reduction

Expose and clean the fractured area, and reduce the fracture. Accurate restoration of original fibula length, alignment, and rotation is critical.

In the case of a spiroidal or oblique fracture, a reduction forceps can be applied. Provisional reduction can be maintained with pointed reduction forceps (clamp) or Kirschner wires. Another possibility, in certain types of fracture, is to use the plate to facilitate and guide the reduction. This method may be especially important in comminuted fractures corrected with a bridging technique.

Note: Application of a distractor or external fixator may facilitate fibular length restoration, fracture reduction, and visualization of the distal tibiofibular joint.

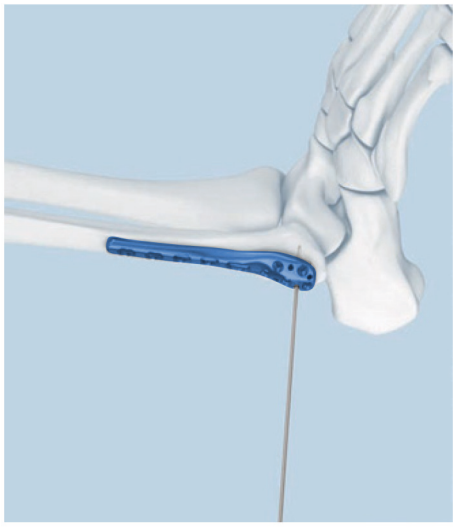
Confirm reduction of the fracture under image intensifier control. Provisional reduction can be obtained with clamps, multiple Kirschner wires, or separate lag screws, if permitted by the type of fracture. Kirschner wires can be placed through the distal end of the plate to help temporarily maintain the reduction and position the plate. The options to maintain the reduction, which depend on the fracture configuration, are:

– Independent lag screws
– Lag screws through plate
– Locking screws through plate

Locking screws do not allow interfragmentary compression; compression should be achieved with standard lag screws or by using the plate itself to compress the fracture. The fracture must be reduced and compressed prior to fixing the Fibule distal fibula plate with locking screws in simple fractures. If a bridging plate technique is planned, the implant can be fixed proximally and distally with locking screws, provided the fibula length, alignment, and rotation are correct.

2.Plate insertion

Proximally expose the fibula to the length necessary to apply the plate. In most cases, an open approach to plate application is best. Sometimes the plate can be inserted submuscularly using a minimal incision technique. The distal lateral fibula plate Fibule can be slid along the lateral aspect of the fibular shaft and positioned with the distal end of the plate approximately 5 mm from the tip of the fibula.



Note: The Fibule posterolateral distal fibula plate is typically positioned 8-10mm from the tip of the fibula.

Using image intensifier to determine if final plate and screw position is acceptable.

3.Plate placement and provisional fixation

Temporarily holds the plate in position with any of the following options. These options also prevent the plate from rotating when inserting the first locking screw:

– Standard plate clamping pliers
– Kirschner wires placed through the plate distally or proximally
– 2.5 or 2.7 mm cortex screw in one of the distal holes
– 3.5 mm cortex screw in a combination hole

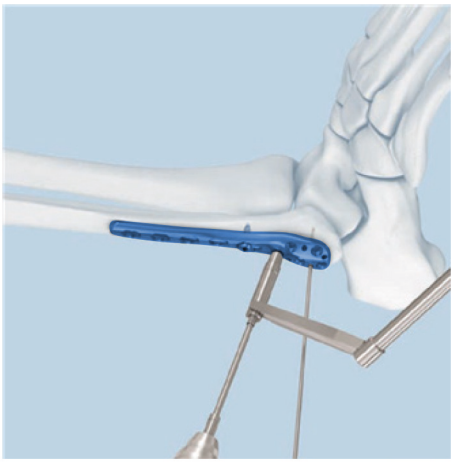
After inserting the plate, check the position and alignment of the plate with the image intensifier. Make sure the fracture is properly reduced before inserting the first locking screw.

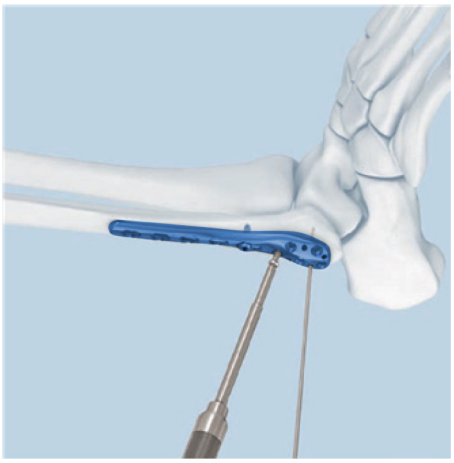
Once the locking screws are inserted, a posterior reduction is no longer possible without loosening them. Check the position of the plate under image intensifier control to determine if the final position of the plate and screws will be acceptable.

4. Insert the distal screws

Determine the screw combination to be used for fixation. If a combination of locking screws and cortex screws is to be used, the cortex screws should be inserted first.

Note: To fix the plate to the fibula before inserting the locking screws, it is recommended to approximate the plate to the bone with a cortex screw.





4a Instruments

Instruments

- Handle, length 110 mm, quick coupling
- 2.0 mm Drill bit, length 100/75 mm, 2-flute, quick coupling
- Screwdriver bit
- Screwdriver, cylindrical, 3.5 mm shaft
- Bolt depth gauge
- 2.5-2.7 Universal Drill Guide

2.7 mm cortex screw insertion (without locking)

For bone predrilling, use the 2.0 mm Drill Bit through the 2.5-2.7 Universal Drill Guide.

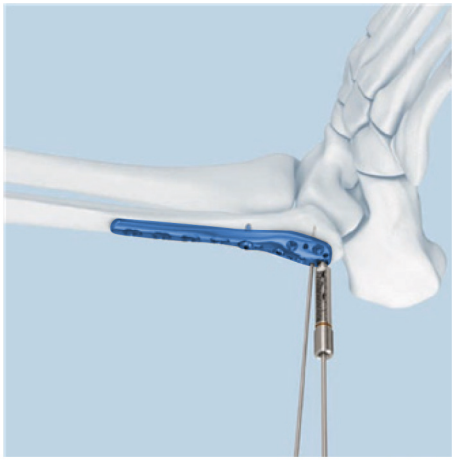
Measure the length of the screw with the depth gauge. Select and insert the appropriate 2.5 or 2.7 mm cortex screw with the screwdriver.

4b Insert locking screws

If you are inserting a locking screw as the first screw, make sure the fracture is well reduced and the plate is firmly attached to the bone. This prevents the plate from rotating when the screw locks into the plate.

Instruments

- Handle, quick coupling.
- 2.7-2.5 Drill Guide.
- 2.0 mm Drill Bit.
- Screwdriver shaft, self-holding.
- Screw depth gauge.



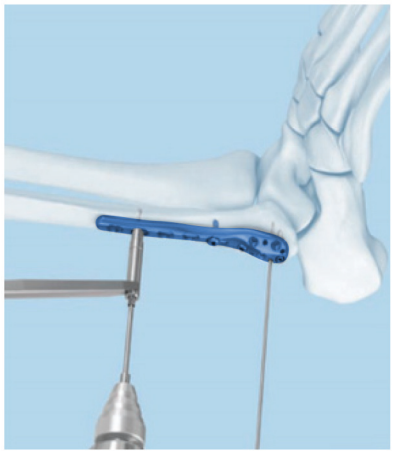
Thread the drill guide into one of the 2.7 mm locking holes, until fully seated. Using the 2.0 mm drill bit, drill the bone to the desired depth, and check the insertion depth of the drill bit with the image intensifier. Determine the required screw length using the scale.

Caution: When determining the correct screw length, ensure that the tip of the screw does not pierce the articular surface.

2.7 and 2.5 mm locking screw can be inserted by hand or with a motor.

5. Inserting the screws into the plate body

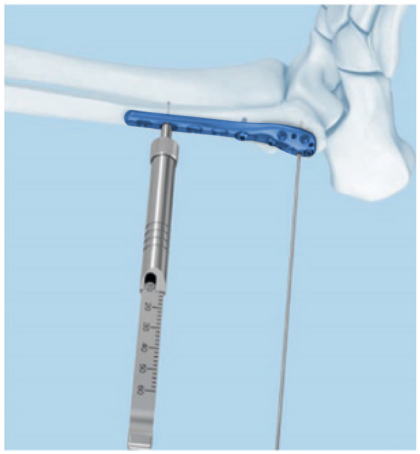
5a 3.5 mm cortex screw insertion (without locking)



Instruments

- 2.5 mm Drill bit, length 110/85 mm, 2-flute, quick coupling
- Handle, quick coupling
- Hex Screwdriver
- 3.5 Screwdriver shaft, self-holding, AO quick coupling
- 3.5 Screwdriver
- Depth gauge for screws measuring up to 60 mm
- Universal Drill Guide

For predrilling the bone, use the 2.5 mm Drill Bit through the Universal Drill Guide. To obtain a neutral position, press the drill guide down into the non-threaded hole. To obtain compression, place the Drill Guide at the end of the non-threaded hole most distant from the fracture (do not press down on the spring-loaded tip).



Determine the length of the screw with the depth gauge. Select and insert the 3.5 mm cortex screw with the corresponding screwdriver.

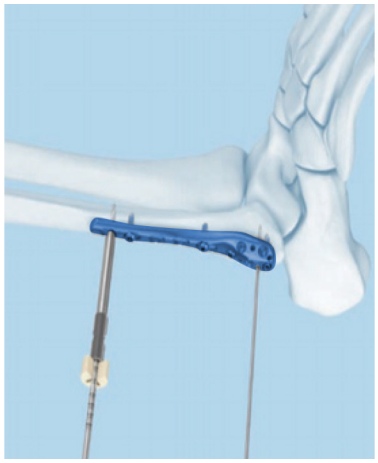
5b Insert locking screws

Instruments

- 3.5 Drill Guide Fibule for 2.8mm Drill Bits
- 2.8mm Drill Bit Fibule, 165mm length, 2-flute, quick coupling
- 3.5 mm Small Hex Driver Shaft
- 3.5 Screwdriver shaft, self-holding, AO quick coupling
- Depth gauge for screws, measuring up to 60 mm

Carefully thread the drill guide into threaded hole in the plate. Pre-drill through the hole with the 2.8 mm bicortical drill. Read the required screw length directly on the drill bit.

Optional: Use a depth gauge to determine screw length.



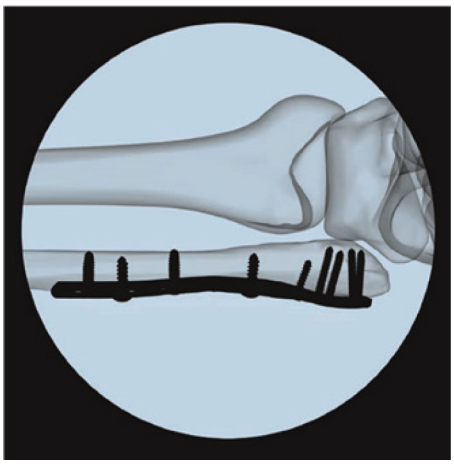
Insert the locking screw with the screwdriver shaft. Insert the screw by hand or with a motor, until you hear a click. If using a motor, reduce the speed by tightening the head of the locking screw on the plate.

Attach the plate firmly to the bone to prevent plate rotation when the screw locks into it.

Repeat the procedure until you have filled all the necessary holes in the plate body. Finally, check that the screws have been locked.

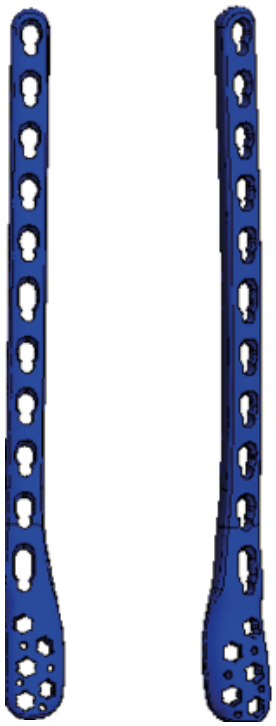
6 Checking reduction and fixation

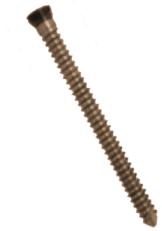
Perform a thorough final reduction and fixation check by direct visualization and image intensifier control. Confirm the stability of the osteosynthesis and the free mobility of the ankle joint. Using radiographic visualization in AP and lateral projections, confirm the reduction of the fracture and the correct placement of the plate and screws.



Lateral distal fibula plates Fibule

Holes	Left or right length mm
3	Right
3	Left
4	Right
4	Left
5	Right
5	Left
6	Right
6	Left
7	Right
7	Left
9	Right
9	Left
11	Right
11	Left





3.5 ALP SCREWS

MEASURES

3.5 mm X 12 mm
3.5 mm X 14 mm
3.5 mm X 16 mm
3.5 mm X 18 mm
3.5 mm X 20 mm
3.5 mm X 22 mm
3.5 mm X 24 mm
3.5 mm X 26 mm
3.5 mm X 28 mm
3.5 mm X 30 mm
3.5 mm X 32 mm
3.5 mm X 34 mm
3.5 mm X 36 mm
3.5 mm X 38 mm
3.5 mm X 40 mm
3.5 mm X 45 mm
3.5 mm X 50 mm
3.5 mm X 55 mm
3.5 mm X 60 mm

3.5 DCP SCREWS

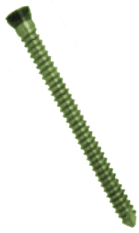
MEASURES

3.5 mm X 12 mm
3.5 mm X 14 mm
3.5 mm X 16 mm
3.5 mm X 18 mm
3.5 mm X 20 mm
3.5 mm X 22 mm
3.5 mm X 24 mm
3.5 mm X 26 mm
3.5 mm X 28 mm
3.5 mm X 30 mm
3.5 mm X 32 mm
3.5 mm X 34 mm
3.5 mm X 36 mm
3.5 mm X 38 mm
3.5 mm X 40 mm
3.5 mm X 45 mm
3.5 mm X 50 mm
3.5 mm X 55 mm
3.5 mm X 60 mm

2.7 DCP SCREWS FOR VARIABLE ANGLE HOLES DISTAL PART

MEASURES

2.7 mm X 12 mm
2.7 mm X 14 mm
2.7 mm X 16 mm
2.7 mm X 18 mm
2.7 mm X 20 mm
2.7 mm X 22 mm
2.7 mm X 24 mm
2.7 mm X 26 mm
2.7 mm X 28 mm
2.7 mm X 30 mm
2.7 mm X 32 mm
2.7 mm X 34 mm
2.7 mm X 36 mm
2.7 mm X 38 mm
2.7 mm X 40 mm
2.7 mm X 45 mm
2.7 mm X 50 mm
2.7 mm X 55 mm
2.7 mm X 60 mm



2.5 DCP SCREWS FOR VARIABLE ANGLE HOLES DISTAL PART

MEASURES

2.5 mm X 08 mm
2.5 mm X 10 mm
2.5 mm X 12 mm
2.5 mm X 14 mm
2.5 mm X 16 mm
2.5 mm X 18 mm
2.5 mm X 20 mm
2.5 mm X 22 mm
2.5 mm X 24 mm
2.5 mm X 26 mm
2.5 mm X 28 mm
2.5 mm X 30 mm

NOTES

TRAUFIX
READY TO RUN

GRUPO DIPROMEDIC
Medical Devices and Health Solutions
Exclusive distributor in Mexico

GRUPO DIPROMEDIC
INTERDIPRO
Exclusive distributor in Peru

FIXIER S.A. DE C.V.
Carretera Doctor Mora a San Miguel de Allende km 3.4,
C.P. 37967, Comunidad de San Rafael, Doctor Mora,
Guanajuato, México.
Tel. +52 419 688 1191

TRAUFIX
READY TO RUN

www.traufix.com

ISO 9001 ISO 13485

Cód.TQ-041 Rev.03 EN