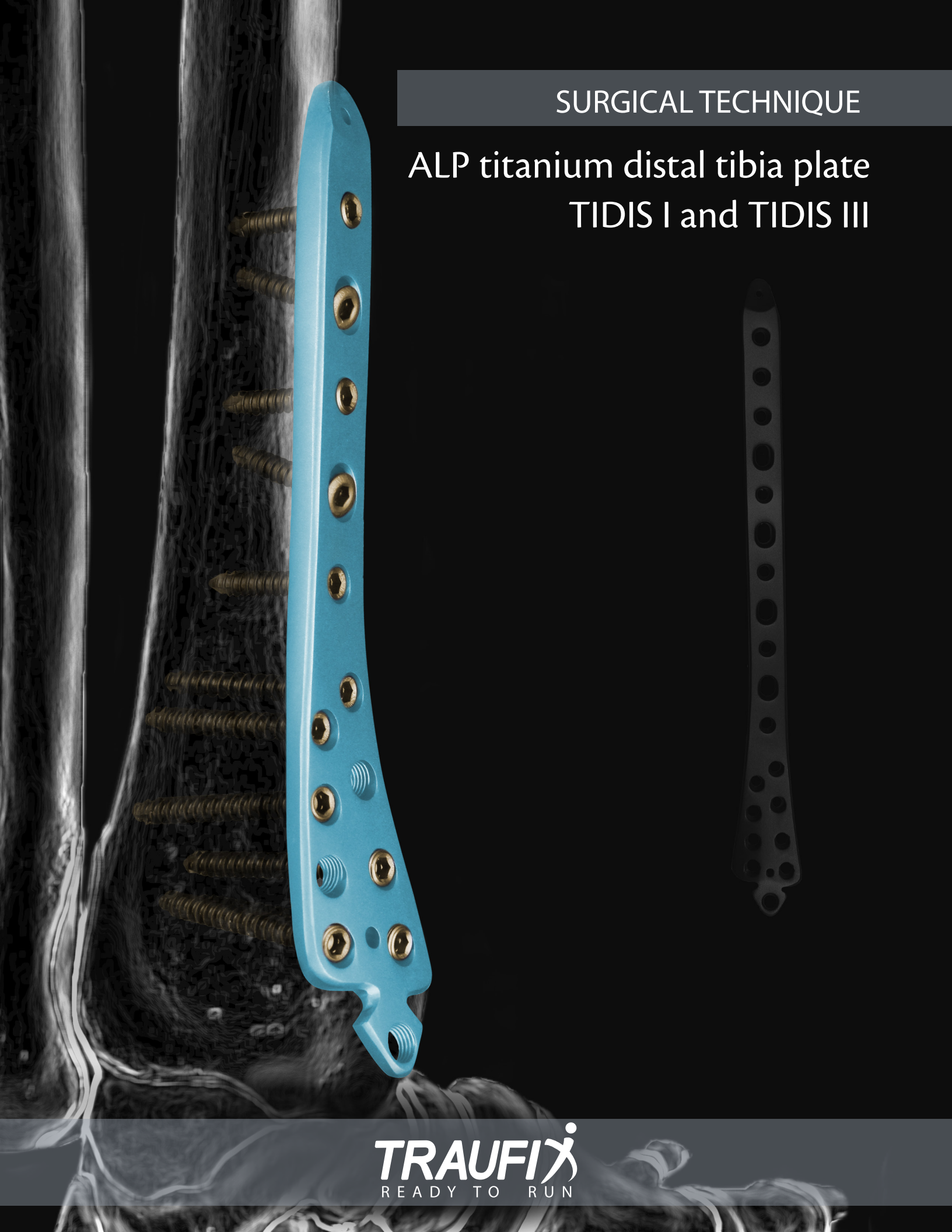
SURGICAL TECHNIQUE

ALP titanium distal tibia plate
TIDIS I and TIDIS III



TRAUFIX
READY TO RUN

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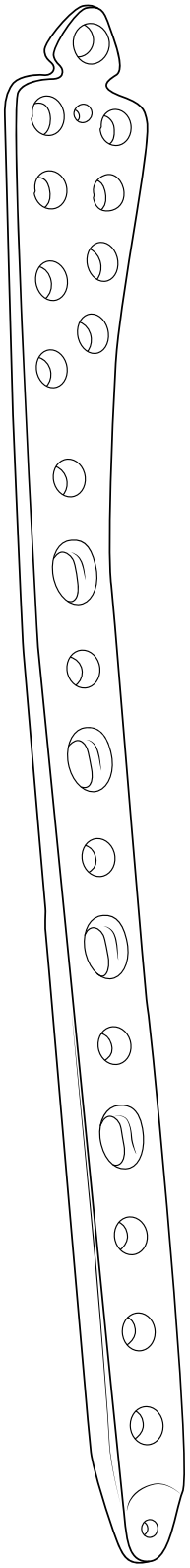


TECHNOLOGICAL ADVANTAGES

The Traufix ALP titanium distal tibia plate TIDIS combines some osteosynthesis techniques with locking screws techniques. The plate is available in titanium. In addition, it has combined holes in its shalf which combine a dynamic compression unit hole with a locking screw hole providing axial compression flexibility throughout the plate shaft.

It also has holes for locking screws which create a fixed angle assembly and do not compromise the fixation in osteopenic bone fractures or multi-fragmentary fractures.

DESCRIPTION OF THE PLATES

- The plate is twisted 20 degrees and bent to fit the distal tibia as it is anatomically molded.
- Shaft design with 5, 7, 9, 11 and 13 combined locking/compression holes.
- Locking holes are compatible with 3.5mm cortex locking screw and 3.5mm cancellous locking screw..
- Distal and proximal holes for Kirschner wires of 1.6mm or 2.0mm.
- Left and right plates are available in Ti6Al4V ELI titanium alloy.
- The locking holes in the distal area are parallel to the joint.
- The elongated hole in the shaft favors the initial positioning of the plate.
- The shaft holes are compatible with 3.5mm locking screws on the threaded part and 3.5mm cortex screws on the compression part.
- The distal tab intended for the optional screw for the medial malleolus is compatible with 3.5mm cortex locking screw and cancellous locking screw.

SURGICAL INDICATIONS

Below are a series of indications where the plate can be used.
The plate can be used in the following cases:

1. Simple extraarticular and intraarticular fractures of the distal tibia.
2. Distal tibia fractures, percutaneous or reducible by limited anatomy.
3. Distal tibia fractures extended to the diaphyseal area.

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).

DESCRIPTION OF SURGICAL TECHNIQUE

Reducing the joint Surface

Tip: Before reducing, applying an external fixer or a large distractor can facilitate visualization and reduction of the joint surface.
Reduce the fracture fragments and check the reduction with the fluoroscope . The reduction can be stabilized using the following methods:

- Independent Kirschner wires.
- Kirschner's wires through the plate.
- Independent traction screws.
- Traction screws through the plate.
- Locking screws through the plate.

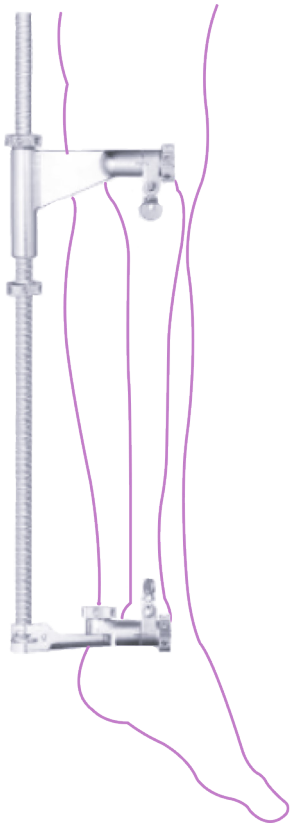
Locking screws do not provide inter fragmental compression; therefore, any desired compression will have to be achieved with traditional lag screws. Before applying the ALP plate with locking screws, it is necessary to have reduced the joint fragments and applied the desired compression.
Note: To verify that independent traction screws will not interfere with plate placement, evaluate placement during intervention using anteroposterior and side images with the fluoroscope .

Bend or cut the distal tab (Optional)

It is recommended to bend or mold the distal tab of the plate with the help of the plate bending pliers. It is possible to cut the distal tab using the cutting pliers.

Caution: The distal tab of the plate should not bend and straighten several times.

Caution
This technique is suggested to describe the use of the TRAUFIX instruments and implants, not aiming to interfere with the experience and decisions of the traumatologist considering his/her vast clinical and surgical experience to determine the best proposal for each particular patient.



Inserting the plate

For minimally traumatic insertion of plate into the medial tibia, it is recommended to make a single simple incision on the inner face of the tibia and proceed to insert the plate carefully from- low soft tissue. Make incisions in the diaphyseal zone to insert the screws into the body area.

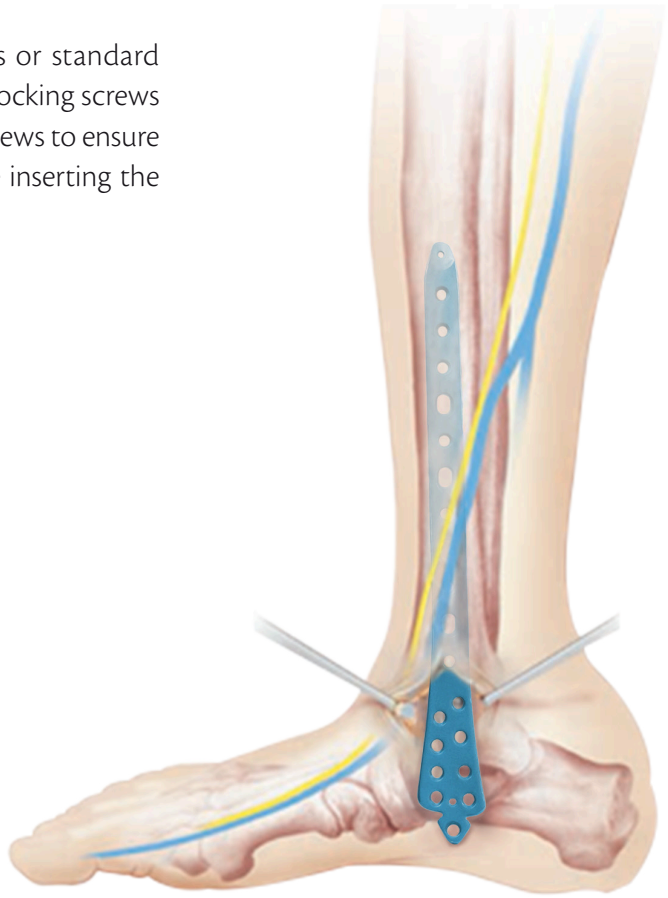
Note: Use a drill guide (128.27) in one of the distal holes to serve as a handle for percutaneous insertion. Before positioning the plate against the bone, use the 3.5mm universal drill guide in the distal holes.

Plate placement and provisional fixation

It is recommended to place the plate on the bone and fix it provisionally using Kirschner wires. Before inserting the first locking screw, make sure that the plate has a good temporary fixation; otherwise, the plate may rotate when trying to lock the screw, causing damage to the soft tissue. Inserting the locking screw can prevent any further reduction.

Determination of screw type and diameter

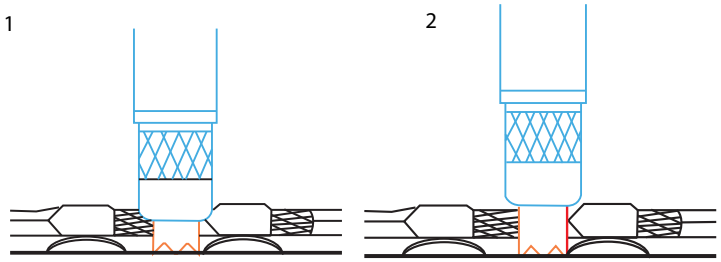
Determine whether to use Ø3.5mm locking screws or standard Ø3.5mm cortex screws. If you use cortical screw and locking screws on the same plate, you must first insert the cortical screws to ensure that the plate is compressed against the bone before inserting the locking screws.

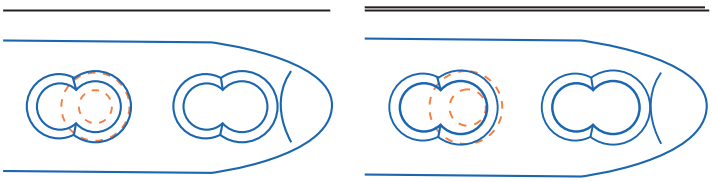


Drilling the holes for the screws

a.-Standard screws

When performing the standard screw bone hole with the universal drill guide and the corresponding drill bit, drill the screw holes in a neutral position (1) or separated from the center (eccentric) (2).

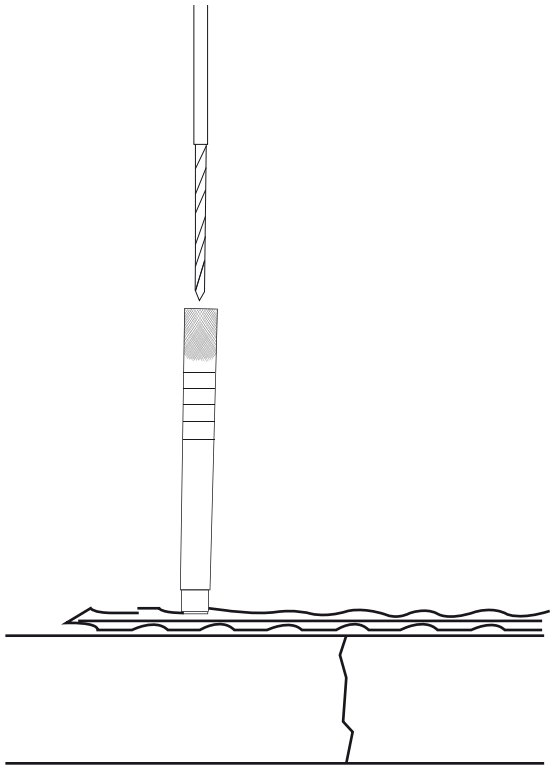




Use the following drill bits:
For 3.5mm cortical screws use a 2.5mm or 2.7mm drill bit.
Note: if you use 3.5mm cortical screws as traction screws, pre-drill the cortical bone of the adjacent fragment with a larger diameter drill bit (3.5mm drill bit).

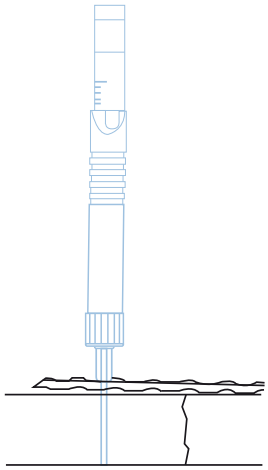
b.- Locking screws

Drilling the bone hole for the locking screws is carried out by pre-screwing the drill guide for 2.7mm drill bit (128.27) into the chosen threaded hole, it must be ensured that the guide is fully fastened by the thread.
The drill guide ensures that the locking screw settles on the plate with correct alignment. If the locking screw is inserted obliquely, its angular stability may be greatly diminished. Note: Avoid bending the plate with the drill guide, as the guide may be damaged.
The bone hole must be drilled with the correct drill bit. The following drill bits should be used:
For 3.5mm locking screws: drill bit of 2.5mm or 2.7mm.
After drilling, remove the drill guide.



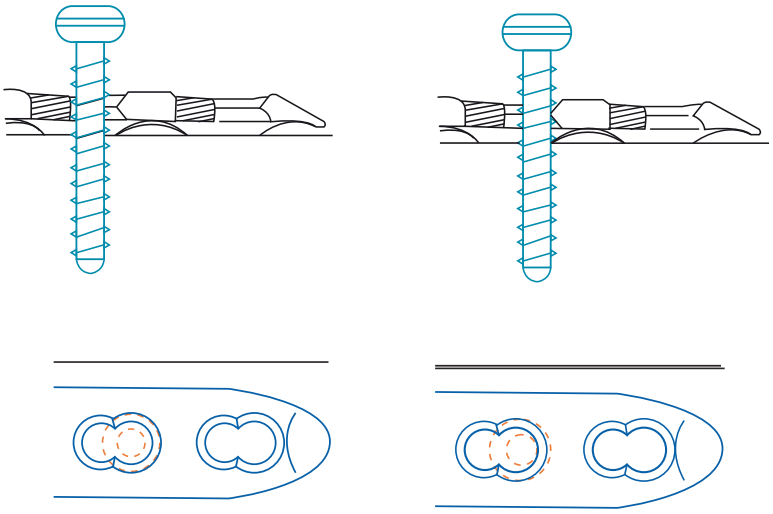
Determining the length of the screws

It is recommended to determine the length of the screws using the depth meter.



Inserting the standard screws

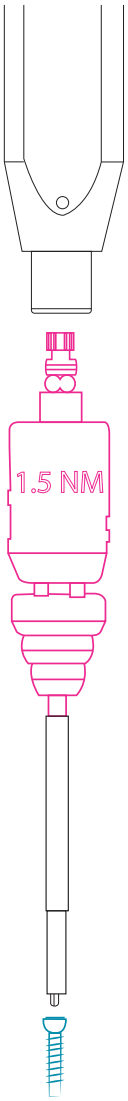
Insert the cortical screws with the small hex screwdriver of 2.5mm.



Inserting the locking screws

To insert the locking screws with a surgical motor, attach the 1.5Nm dynamometric adapter to the motor unit and insert the hexagonal screwdriver tip into the dynamometric adapter. Take the locking screw and insert it into the correct hole of the plate. To insert the screw, start the motor drive slowly, increase the speed and reduce it again before the screw is completely tightened. The dynamometric adapter will automatically limit torque, one click will be heard, when maximum torque is reached. Stop the motor unit immediately and disconnect it from the screw.

Warning: Never insert locking screws with power tools without attaching a dynamometric adapter.
Notes: Do not lock the screw at maximum speed, as it may damage the hexagonal groove of the screw, thus making it difficult to remove the implant.
In case of long screws and thick cortical bone, special attention should be paid to cooling during the insertion process.
In the case of porous bone, there is a danger that the locking screw will not advance through the previously drilled hole but will open the motor-driven forward, creating a new slightly oblique bone path, which would result in partial loss of angular stability. For this reason, it is recommended to carry out manual screw locking (with the help of the dynamometric adapter handle) to ensure better control of the insertion direction.



To manually insert the locking screws, mount the 1.5Nm dynamometric adapter on the dynamometric adapter handle and insert the corresponding screwdriver piece.
Attach the locking screws to the plate.

Implant removal

The decision to remove the implant belongs to the attending physician. Removal of the implant is recommended once the consolidation process has been completed whenever feasible and appropriate for the patient.
To remove the screws, first clear the screw head, eliminating any tissue that may have penetrated the hexagonal entrance to ensure that the screwdriver enters correctly and to reduce the risk of damage to the screwdriver preventing removal. Unscrew all the screws and remove them to later extract the plate.

IMPLANTS AND INSTRUMENTS

PLATES

ALP TITANIUM DISTAL TIBIA PLATE TIDIS RIGHT

110.05 ALP titanium distal tibia plate TIDIS 5 holes right
110.07 ALP titanium distal tibia plate TIDIS 7 holes right
110.09 ALP titanium distal tibia plate TIDIS 9 holes right
110.11 ALP titanium distal tibia plate TIDIS 11 holes right
110.13 ALP titanium distal tibia plate TIDIS 13 holes right

ALP TITANIUM DISTAL TIBIA PLATE TIDIS LEFT

111.05 ALP titanium distal tibia plate TIDIS 5 holes left
111.07 ALP titanium distal tibia plate TIDIS 7 holes left
111.09 ALP titanium distal tibia plate TIDIS 9 holes left
111.11 ALP titanium distal tibia plate TIDIS 11 holes left
111.13 ALP titanium distal tibia plate TIDIS 13 holes left

ALP TITANIUM DISTAL TIBIA PLATE TIDIS-III RIGHT

172.05 ALP titanium distal tibia plate TIDIS-III 5 holes right
172.07 ALP titanium distal tibia plate TIDIS-III 7 holes right
172.09 ALP titanium distal tibia plate TIDIS-III 9 holes right
172.11 ALP titanium distal tibia plate TIDIS-III 11 holes right
172.13 ALP titanium distal tibia plate TIDIS-III 13 holes right

ALP TITANIUM DISTAL TIBIA PLATE TIDIS-III LEFT

173.05 ALP titanium distal tibia plate TIDIS-III 5 holes left
173.07 ALP titanium distal tibia plate TIDIS-III 7 holes left
173.09 ALP titanium distal tibia plate TIDIS-III 9 holes left
173.11 ALP titanium distal tibia plate TIDIS-III 11 holes left
173.13 ALP titanium distal tibia plate TIDIS-III 13 holes left

SCREWS

3.5mm TITANIUM CORTEX LOCKING SCREW

106.12 3.5mm titanium cortex locking screw 12mm
106.14 3.5mm titanium cortex locking screw 14 mm
106.16 3.5mm titanium cortex locking screw 16 mm
106.18 3.5mm titanium cortex locking screw 18 mm
106.20 3.5mm titanium cortex locking screw 20 mm
106.22 3.5mm titanium cortex locking screw 22 mm
106.24 3.5mm titanium cortex locking screw 24 mm
106.26 3.5mm titanium cortex locking screw 26 mm
106.28 3.5mm titanium cortex locking screw 28 mm
106.30 3.5mm titanium cortex locking screw 30 mm
106.32 3.5mm titanium cortex locking screw 32 mm
106.34 3.5mm titanium cortex locking screw 34 mm
106.36 3.5mm titanium cortex locking screw 36 mm
106.38 3.5mm titanium cortex locking screw 38 mm
106.40 3.5mm titanium cortex locking screw 40 mm
106.45 3.5mm titanium cortex locking screw 45 mm
106.50 3.5mm titanium cortex locking screw 50 mm
106.55 3.5mm titanium cortex locking screw 55 mm
106.60 3.5mm titanium cortex locking screw 60 mm

3.5mm TITANIUM CORTEX SCREW

112.12 3.5mm titanium cortex screw 12 mm
112.14 3.5mm titanium cortex screw 14 mm
112.16 3.5mm titanium cortex screw 16 mm
112.18 3.5mm titanium cortex screw 18 mm
112.20 3.5mm titanium cortex screw 20 mm
112.22 3.5mm titanium cortex screw 22 mm
112.24 3.5mm titanium cortex screw 24 mm
112.26 3.5mm titanium cortex screw 26 mm
112.28 3.5mm titanium cortex screw 28 mm
112.30 3.5mm titanium cortex screw 30 mm
112.32 3.5mm titanium cortex screw 32 mm
112.34 3.5mm titanium cortex screw 34 mm
112.36 3.5mm titanium cortex screw 36 mm
112.38 3.5mm titanium cortex screw 38 mm
112.40 3.5mm titanium cortex screw 40 mm
112.45 3.5mm titanium cortex screw 45 mm
112.50 3.5mm titanium cortex screw 50 mm
112.55 3.5mm titanium cortex screw 55 mm
112.60 3.5mm titanium cortex screw 60 mm

3.5mm TITANIUM CANCELLOUS LOCKING SCREW

107.12 3.5mm titanium cancellous locking screw 12 mm
107.14 3.5mm titanium cancellous locking screw 14 mm
107.16 3.5mm titanium cancellous locking screw 16 mm
107.18 3.5mm titanium cancellous locking screw 18 mm
107.20 3.5mm titanium cancellous locking screw 20 mm
107.22 3.5mm titanium cancellous locking screw 22 mm
107.24 3.5mm titanium cancellous locking screw 24 mm
107.26 3.5mm titanium cancellous locking screw 26 mm
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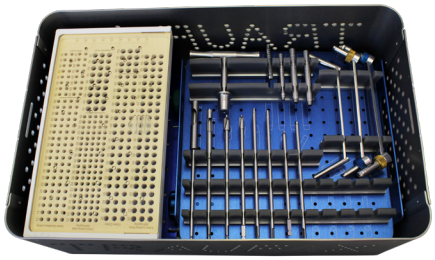
107.32 3.5mm titanium cancellous locking screw 32 mm
107.34 3.5mm titanium cancellous locking screw 34mm
107.36 3.5mm titanium cancellous locking screw 36 mm
107.38 3.5mm titanium cancellous locking screw 38 mm
107.40 3.5mm titanium cancellous locking screw 40 mm
107.45 3.5mm titanium cancellous locking screw 45 mm
107.50 3.5mm titanium cancellous locking screw 50 mm
107.55 3.5mm titanium cancellous locking screw 55 mm
107.60 3.5mm titanium cancellous locking screw 60 mm

INSTRUMENTS

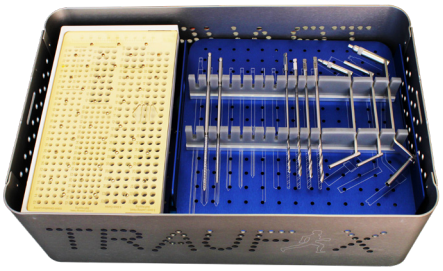
The following instruments are designed to anchor only on Traufix implants, the use of instruments from other brands may damage the product and not anchor properly.

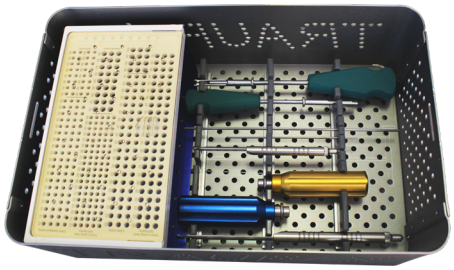
CODE	DESCRIPTION
128.27	Drill guide for 2.7mm drill bit



Other generic instruments needed:

QTY.	DESCRIPTION
2	2.0mm threaded guide-wire
2	1.5mm threaded guide-wire
1	2.5mm hexagonal screwdriver for 3.5mm/4.5mm screw
1	2.5mm eccentric neutral drill guide
1	2.5mm/3.5mm double drill guide
1	2.5mm/3.5mm double drill guide
1	Torque wrench AO of 1.5Nm
1	T-handle with quick coupling (AO)
1	60mm depth gauge
1	6mm countersink tip for 3.5mm/4.0mm screw
1	2 .5mm screwdriver hexagonal tip
1	2.5mm hexagonal screw extractor tip
1	3.5mm tap tip
1	6.5mm reamer tip for small fragments
1	2.5mm drill bit quick coupling
1	2.7mm drill bit quick coupling





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