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Integra Tibiaxys Ankle Plate Features

Anatomically contoured plates

- The plates are designed to approximate the patient’s bony and soft tissue anatomy
- The plates design makes positioning easier and more reproducible

Universal plate locking mechanism

- Fixed and Variable Angle Surfix® screws can be used in the same locking hole
- Allows surgeon to vary the screw position prior to locking

Surfix locking system

- Fixed and variable angle Surfix® locking screws
- Provides a reliable, monobloc construction (screw / plate / bone)
Integra Tibiaxys Ankle Fusion

System Benefits

Versatile and adaptive system

- All implants and instruments are contained in a single, two-tier sterilization tray

Easy, reliable and reproducible fixation

- Anatomically contoured plates, complete instrumentation set

Rigid Fixation

- Locking technology increases stability for demanding procedures such as revision ankle arthrodesis or failed total ankle arthrodesis

Indications

For fixation of bone fractures or for bone reconstruction. Examples include:

- Arthrodesis and fractures of ankle joint and distal tibia

The Integra Tibiaxys Plates are fixed with Surfix or Surfix Alpha Locking System 3.5mm diameter screws and lock-screws. The Anterior plates for ankle arthrodesis must also be fixed with Tibiaxys 4mm diameter cortical screws.

Possible Uses for Arthrodesis Plates*

The Tibiaxys ankle fusion plates are dedicated for arthrodesis of the ankle (tibiotalar joint). Arthrodesis of the ankle may be required resulting from:

- Primary osteoarthritis
- Post-traumatic osteoarthritis
- Arthritis of the ankle

* The Integra Tibiaxys Plates are indicated in surgical procedures used for the treatment of arthritis.
Integra Tibiaxys Ankle Fusion Surgical Technique

This technique has been developed in conjunction with Professor Beat Hintermann, Liestal, Switzerland.

As the manufacturer of this device, Integra does not practice medicine and does not recommend this or any other surgical technique for use on a specific patient. The surgeon who performs any implant procedure is responsible for determining and using the appropriate techniques for implanting the device in each patient.

- In case of gross deformity or bone defects, reconstruction with allograft or an autograft from iliac crest or other anatomic regions may be necessary.
- Excessive length of the fibula causing lateral impingement may make shortening necessary. This can be easily done through the same anterior approach.
- Demineralized bone matrix or alternative bone graft substitute may be used to improve bone healing.

Step 1 • Patient Positioning

The patient is placed in a supine position on a radiolucent operating table.

The ipsilateral pelvis should be supported to control external rotation of the leg, so that the patella is directed upward to facilitate the operation.

A tourniquet is applied at the thigh.

Step 2 • Exposure

A 10 to 12 cm anterior longitudinal incision is performed directly lateral to the anterior tibial tendon.

Divide subcutaneous tissues to the extensor retinaculum paying attention to the medial branches of the superficial peroneal nerve and the veins.

Longitudinally dissect the extensor retinaculum along the lateral border of anterior tibial tendon.

Expose the distal tibia beneath with the anterior tibial tendon retracted medially with a small blunt retractor, and expose subperiosteal distal tibia using 2 small Hohmann retractors.

Arthrotomy of the ankle joint is performed and any scarred capsule or loose bodies are removed.

Expose the neck of the talus.

Position a self-retaining retractor using caution to not apply tension to the skin.
Step 3 • Preparation of the Joint

Integra® Distraction Forceps may be used to aid in exposure of the ankle joint.

Remaining cartilage is removed from the talar dome, the tibial plafond and the medial gutter using a chisel and curettes. Caution should be used to preserve the anatomic configuration of surfaces.

After denuding the subchondral bone, a 2.5mm drill or a burr is used to break sclerotic bone areas.

Cysts are cleaned and filled with cancellous bone graft or bone matrix.

- Preservation of the convexity of the talar dome and concavity of the distal tibia may increase residual stability after internal fixation, particularly against rotational forces. In any case, anterior and posterior rims of the distal tibia should be preserved to get high contact stress at the anterior and posterior aspects of arthrodesis which will increase intrinsic stability of the arthrodesis.
- The lateral gutter does not need to be cleaned.
- In very sclerotic cases or talus necrosis, opening the tourniquet during operation may help evaluation of the vitality of the bone.
- Using a sharp curved chisel allows easier removal of the cartilage and preserves anatomic shape of the bones.

Step 4 • Fixation with the Plates

It is crucial to the success of the surgery to obtain the correct alignment and positioning prior to the application of internal fixation. The optimal position must be achieved in all planes.

The use of X-rays or fluoroscopy is highly recommended to check and ensure the correct anatomic alignment and positioning of the plates and screws.

Appropriate Alignment Is Critical

Once the desired reduction is obtained, a 2.5mm K-wire (115 225ND) is inserted through the joint, from distal tibia into the talus (Fig. 4-1).

Optimally, the K-wire should be placed in the center of the tibia in the sagittal plane. This helps to reduce the chance of interference when the plates are implanted later in the surgery.

The K-wire temporarily maintains the position of the talus against the tibia while the plates are positioned and fixated.

Plate Positioning and Fixation

Both the antero-lateral and the antero-medial plates are first fixed to the distal talus. This fixation is achieved using 3.5 mm Surfix fixed angle (standard) locking screws and not the Surfix -Alpha (variable angle) locking screws. The holes in the distal portion of the plates are set at a specific orientation and the use of variable angle screws is not recommended.
Compression is applied using the compression forceps prior to proximal fixation of the plates in the distal tibia. Proximal fixation can be achieved using either the 3.5 mm Surfix fixed angle or 3.5 mm Surfix-Alpha locking screws.

Finally, a 4mm cortical screw is placed through the most distal tibial hole in each plate and then through the ankle joint.

**Antero-Lateral Plate**

The antero-lateral plate (150 120SND or 150 020SND, depending on the operative side) is fixed first.

Any residual osteophytes that prevent correct plate placement should be removed prior to final plate positioning.

4-2

The distal portion of the antero-lateral plate is fixed with 3 Surfix fixed angle (standard) locking screws to the lateral aspect of the talar neck (Fig. 4-2). Positioning of one or several wedges (159 103ND, 159 106ND, 159 109ND) into the tibial holes can help position the plate on the talus independently from the tibial side.

Drilling guides (219 635ND) are fixed to the plate on the 3 most distal threaded holes using the screwdriver (219 835ND).
Standard Surfix Locking Screw Insertion

1. Prepare holes with the 2.7 mm drill (219 535ND) through the drilling guide (219 635ND). The screw length can be determined from the calibrated scale on the drill. The depth is determined from the top side of the drilling guide.

2. Alternately, measure the necessary screw length using the depth gauge (219 335ND), after having removed the drilling guide.

3. Chamfer the drill hole with the screwdriver (219 835ND). Ensure that the threaded hole is not damaged when performing the chamfering.

4. Using the Hex screwdriver (219 835ND, 219 435ND), insert the screw into the prepared hole until the plate is at the desired position relative to the bone. The screw should be fully seated in the plate. Clean the threaded hole before and after introducing the screw. Maintain coaxiality between the screw and the threaded hole.

5. Assemble the lock-screw to the appropriate screwdriver (219 835ND). The lock-screw should be inserted after each screw, and before preparation and insertion of the subsequent screw. This prevents potential damage to the thread.

6. Locking: Fully seat the lock-screw with the screwdriver. The lock-screw should be flush with the top of the plate when it is fully inserted.

Caution
Steps 1 to 6 should be completed for each screw before starting preparation of the subsequent screw(s). If not, the axis of the screw and the prepared hole may be misaligned.
Compression of the Joint

Compression of the ankle joint and the medial malleolus is achieved using the compression forceps (219 960ND).

1. Place the compression guide (159 635ND) through the hole in the compression forceps (219 960ND) and screw the guide in the most proximal threaded hole in the plate.

   Alternately, the second most proximal threaded hole may be used if the skin incision does not allow assembly of the compression forceps to the proximal most hole.

   **Note**
   Ensure Compression Guide is fully threaded and seated properly into the plate prior to applying compression.

2. Position the upper arm of the compression forceps on the tibia diaphysis while maintaining the axis of the plate along the long axis of the tibia. The distance between the arms of the compression forceps should be about 2 cm to allow sufficient compression.

3. Prepare the compression screw insertion (159 740ND, 159 755ND or 159 760ND) using the 3 mm drill (219 545ND) through the hole in the upper arm of the compression forceps.

4. Insert the compression screw (159 740ND, 159 755ND or 159 760ND) into the tibia through the hole in the upper arm of the compression forceps (219 960ND) using the screwdriver (219 845ND / 219 445ND). The compression forceps is fixed, in an open position, to the plate and the tibia.

5. Compression is applied with the compression forceps as shown in the adjacent figure.
Tibial Fixation

While maintaining compression with the forceps, the tibial portion of the lateral plate is fixed bicortically with either four Surfix or Surfix-Alpha locking screws. The choice of fixed angle (standard) Surfix or Surfix-Alpha locking screws depends on the need to vary the orientation of the screws. If Surfix-Alpha locking screws are used, an equal number of fixed angle Surfix and Surfix-Alpha locking screws is recommended. It is also recommended that a standard Surfix locking screw be used in the most proximal threaded hole.

For the standard Surfix locking screw insertion, refer to the Standard Surfix Locking Screw Insertion section of the surgical technique on page 7. The insertion of Surfix Alpha screw is performed as follows:

The variable angle drilling guide allows 15 degrees of variable placement in any direction.

If the surgeon tries to angle the screw beyond 15 degrees (less than 75° or more than 105° between the plate and screws), the drilling guide will come out of the plate.

Surfix Alpha Locking Screw Insertion

1. Prepare holes with the 2.7 mm drill (219 535ND) through the drilling guide. The screw length can be determined from the calibrated scale on the drill. The depth is determined from the top side of the drilling guide.

2. Alternately, measure the necessary screw length using the depth gauge (219 335ND).

3. Chamfer the drill hole with the screwdriver (219 835ND). Ensure that the threaded hole is not damaged when performing the chamfering.

4. Insert the screw with the screwdriver (219 835ND, 219 435ND) into the prepared hole until the plate is at the desired position relative to the bone. The screw should be fully seated in the plate. Clean the threaded hole before and after introducing the screw.
5. Assemble the lock-screw to the torx screwdriver (219 35ND). The lock-screw should be inserted after each screw, and before preparation and insertion of the subsequent screw. This prevents potential damage to the thread. Note that this spherical shaped lock-screw has to be inserted perpendicularly to the plate in order to be screwed properly.

6. Locking: Fully seat the lock-screw with the screwdriver. The correct orientation of the lock-screw is concave surface down, interfacing with the screw head to fully seat. Note that this spherical shaped lock-screw has to be inserted perpendicularly to the plate in order to be screwed properly.

**Caution**
Steps 1 to 6 should be completed for each screw before starting preparation of the subsequent screw(s). If not, the axes of the screw and the prepared hole may be misaligned.
Antero-Medial Plate

The antero-medial plate (150 010SND or 150 110SND depending on the operative side) is fixed after the antero-lateral plate (Fig. 4-3).

Positioning and fixation of this plate is performed following a similar technique used to place the antero-lateral plate.

Locking of the Joint

Additional 4mm cortical screws are placed across the ankle joint to provide additional compression. The screws are placed through the tibia across to the dorsal part of the talus. This provides additional stabilization of the joint with more posterior fixation, and can also be used to fixate structural bone graft used to fill defects between the tibia and talus.

The drilling guide (159 130ND) is inserted into the most distal tibial hole (non threaded). The guide should be oriented from the tibia toward the posterior side of the talus.

Prepare the insertion of the screw using the 3mm drill (219 545ND) through the drilling guide (Fig. 4-4). The drill should not be inserted beyond the posterior talar cortex as it will violate the sub-talar joint. Use of X-ray or fluoroscopy is recommended to ensure correct positioning of the drill.

Measure the necessary screw length using the depth gauge (159 400ND) (Fig. 4-5).

Insert the screw into the prepared hole using the screwdriver (219 445ND or 219 845ND) (Fig. 4-6).
Step 5 • Closure and End of the Procedure

A final check is performed using fluoroscopy.

The longitudinal incision of the extensor retinaculum is closed by continuous absorbable O suture.

The skin is closed with interrupted non-absorbable 3-0 sutures.

A drain is not used routinely.

A thick compressive dressing is applied and the foot placed in a reusable prefab splint.

The tourniquet is deflated.

Step 6 • Postoperative Care

On the second postoperative day, the compressive dressings and prefabricated splint are replaced by a removable cast. This allows the use of an inflatable footpump in case of substantial postoperative swelling.

After subsidence of the swelling (mostly between day 6 and 14 days postop), a below-knee walking cast is applied and left in place until the eighth postoperative week.

Removal of the stitches should not be done before the 14th postoperative day. Once the walking cast is applied, weight-bearing is allowed as tolerated; usually full weight-bearing is achieved after 10 to 14 days postoperatively.

At eight weeks, the cast is removed and standard radiographs are taken. If bony fusion is considered not to be sufficient, a removable walking cast is applied for another 4 to 6 weeks. If the fusion is considered to be sufficient, the patient is allowed free ambulation on custom shoes.

Low molecular heparin or oral anticoagulants should be given, as long as the walking cast is in place or free full weight bearing is not granted.
Integra Tibiaxys Tibial Osteotomy

System Benefits

Versatile and adaptive system
- All implants and instruments are contained in a single, two-tier sterilization tray

Easy, reliable and reproducible fixation
- Anatomically contoured plates, complete instrumentation set

Rigid fixation
- Locking technology increases stability for demanding procedures such as opening and closing wedge osteotomies and complex fractures

Indications

For fixation of bone fractures or for bone reconstruction. Examples include:
- Osteotomies and fractures of ankle joint, distal tibia and fibula

The Integra Tibiaxys Plates have to be fixed with the Surfix Locking screws diam. 3.5 mm and lock-screws.

Possible Uses for Osteotomy Plates

Internal fixation after osteotomies of distal tibia and/or fibula for correction of:
- Varus/valgus (frontal plane) misalignment
- Retrocurvatum/antecurvatum (sagittal plane) misalignment
- Malrotation deformity
- Internal fixation of distal tibia and fibula for treatment of:
  - Fractures
  - Nonunions/pseudarthroses

Antero-lateral / Antero-medial plates  Medial plate  Fibula plates
Tibia  Fibula
Integra Tibiaxys Tibial Osteotomy Surgical Technique

This technique has been developed in conjunction with Professor Beat Hintermann, Liestal, Switzerland.

As the manufacturer of this device, Integra does not practice medicine and does not recommend this or any other surgical technique for use on a specific patient. The surgeon who performs any implant procedure is responsible for determining and using the appropriate techniques for implanting the device in each patient.

- Loss of more than half of tibiotalar joint surface (plain radiographs, MRI, arthroscopy) may be treated with ankle arthroplasty or fusion.
- Lack of compliance to the postoperative non-weight bearing program caused by neurological disease, poor health status may be treated by ankle arthrodesis.
- Insufficiency of the whole deltoid ligament complex may result in tibiotalar subluxation; such an unstable valgus ankle should be treated by ankle fusion.

This surgical technique describes the positioning of a medial osteotomy plate in the treatment of a valgus ankle osteoarthritis (closing wedge osteotomy).

The same principles and application of the instrumentation set can be applied to the antero-lateral and antero-medial plates and for opening wedge osteotomies.

**Step 1 • Patient Positioning**

1-1 The patient is in a supine position on a radiolucent operating table.

- Tourniquet at the thigh.
- Pad under lower leg for elevation.
- Heel flush with the operating table.

**Step 2 • Exposure**

2-1 For tibial osteotomy, a medial skin incision (length 7-8 cm) is performed directly over the distal tibial metaphysis.

2-2 The saphenous vein and nerve run posteromedially to the incision and usually do not hinder a direct bone approach.

2-3 Soft tissues are retracted en bloc with a retractor.

**Step 3 • Ankle Arthroscopy**

3-1 Assessment of cartilage, ligaments and instability pattern.

- Scarred and inflammatory soft tissues causing soft tissue impingement are removed.
- Osteophytes are debrided to eliminate impingement or restricted range of motion.
- Microfracturing in case of circumscribed confined chondral lesions.
Step 4 • Tibial Osteotomy

4-1 The use of fluoroscopy is highly recommended to check the correct position of the K-wires, bones, plates and screws.

Preparation of the osteotomy

4-2 Two K-wires (15 225ND) are inserted under fluoroscopy to guide the saw blade. Their direction is perpendicular to the cortical bone, thus running typically slightly distal (Fig. 4-1 & 4-2), aiming directly toward the medial cortex after the osteomy is closed. A goniometer may be used.

Performing the osteotomy

4-3 The osteotomy is performed by following the K-wires with the saw blade (Fig. 4-3). The bone wedge is mobilized (Fig. 4-4) and removed (Fig. 4-5).

Deminerlized bone matrix or alternate bone graft substitute may be used to improve bone healing.

4-4 The lateral cortex at the tip of the wedge is preserved to enhance stability of fixation and is used as a hinge to translate the heel contact point to the convex side of the deformity. The osteotomy is slowly closed by manual compression.

In closing the wedge tibial osteotomy, if the base of the wedge is more than 10mm in thickness, closing the osteotomy may cause a relevant zigzag deformity of the distal tibia. In this case the lateral cortex is cut to allow adjustment by translation of the distal tibial fragment. Usually, translation is not necessary in wedges with a base smaller than 10 mm.

Positioning and fixation with the medial plate

4-5 The plate is first fixed to the distal part of the tibia (distal to the osteotomy cut) with 3.5 mm fixed angle (standard) Surfex locking screws.

Compression can then be applied using the compression forceps from the instrument set prior to fixation of the proximal portion of the plate to the tibial diaphysis.

Proximal fixation of the plate in the tibial diaphysis is achieved using either 3.5mm fixed angle Surfex or 3.5 mm Surfex-Alpha (variable angle) locking screws.
Distal fixation

The medial plate is positioned (Fig. 4-6) and the distal portion of the osteotomy is fixed (Fig. 4-7).

Positioning of the plate relative to the osteotomy site:

The distance between the 2 holes that are designed to straddle the osteotomy site are spaced farther apart than the other holes on the plate. This provides a visual reference to guide the positioning of the plate over the osteotomy site.
Standard Surfix Locking Screw Insertion

1. Prepare holes with the 2.7 mm drill (219 535ND) through the drilling guide (219 635ND). The screw length can be determined from the calibrated scale on the drill. The depth is determined from the top side of the drilling guide.

2. Alternately, measure the necessary screw length using the depth gauge (219 335ND), after having removed the drilling guide.

3. Chamfer the drill hole with the screwdriver (219 835ND). Ensure that the threaded hole is not damaged when performing the chamfering.

4. Using the Hex screwdriver (219 835ND, 219 435ND), insert the screw into the prepared hole until the plate is at the desired position relative to the bone. The screw should be fully seated in the plate. Clean the threaded hole before and after introducing the screw. Maintain coaxiality between the screw and the threaded hole.

5. Assemble the lock-screw to the appropriate screwdriver (219 835ND). The lock-screw should be inserted after each screw, and before preparation and insertion of the subsequent screw. This prevents potential damage to the thread.

6. Locking: Fully seat the lock-screw with the screwdriver. The lock-screw should be flush with the top of the plate when it is fully inserted.

**Caution**

Steps 1 to 6 should be completed for each screw before starting preparation of the subsequent screw(s). If not, the axis of the screw and the prepared hole may be misaligned.
Compression / Closing the Osteotomy

The osteotomy is closed by applying varus force to the foot and/or using the compression forceps fixed to the proximal side of the plate.

1. Place the compression guide (159 635ND) through the hole in the compression forceps (219 960ND) and screw the guide in the most proximal threaded hole in the plate.

   Alternately, the second most proximal threaded hole may be used if the skin incision does not allow assembly of the compression forceps to the proximal most hole.

**Note**

Ensure Compression Guide is fully threaded and seated properly into the plate prior to applying compression.

2. Position the upper arm of the compression forceps on the tibial diaphysis while maintaining the axis of the plate along the long axis of the tibia. The distance between the arms of the compression forceps should be about 2 cm apart to allow sufficient compression.

3. Prepare the compression screw insertion (159 740ND / 159 755ND / 159 760ND) using the 3 mm drill (219 545ND) through the hole of the upper arm of the compression forceps.

4. Insert the compression screw (159 740ND / 159 755ND / 159 760ND) into the tibia through the hole in the upper arm of the compression forceps (219 960ND) using screwdriver (219 845ND / 219 445ND). The compression forceps is fixed, in an open position, to the plate and the tibia.

5. Compression is applied with the compression forceps, as shown in the adjacent figure.
Fixation to the tibial diaphysis

While maintaining compression with the compression forceps, the tibial portion of the medial plate is bicortically fixed to the medial aspect of the tibial diaphysis using either four Surfix or Surfix-Alpha locking screws.

The choice of fixed angle (standard) Surfix or Surfix-Alpha (variable angle) locking screws depends on the need to vary the orientation of the screws. If Surfix-Alpha locking screws are used, an equal number of fixed angle Surfix and Surfix-Alpha locking screws is recommended. It is also recommended that a standard Surfix locking screw be used in the most proximal threaded hole.

For preparation and insertion of standard Surfix locking screw, refer back to the Standard Surfix Locking Screw Insertion section on page 17.

Oblique screw insertion into the tibial diaphysis may provide additional compression to the closed osteotomy.

Preparation and insertion of Surfix Alpha screws is performed as follows:
The variable angle drilling guide (219 035ND) is inserted into the chosen threaded hole to obtain a variable placement (+/- 15°) between the plate and the screw.

If the angle is less than 75° or more than 105°, the drilling guide will not fit into the hole.

Surfix Alpha Locking Screw Insertion

1. Prepare holes with the 2.7 mm drill (219 535ND) through the drilling guide. The screw length can be determined from the calibrated scale on the drill. The depth is determined from the top side of the drilling guide.

2. Alternately, measure the necessary screw length using the depth gauge (219 335ND).

3. Chamfer the drill hole with the screwdriver (219 835ND). Ensure that the threaded hole is not damaged when performing the chamfering.
4. Insert the screw with the screwdriver (219 835ND / 219 435ND) into the prepared hole until the plate is at the desired position relative to the bone. The screw should be fully seated in the plate. Clean the threaded hole before and after introducing the screw.

5. Assemble the lock-screw to the torx screwdriver (219 135ND). The lock-screw should be inserted after each screw, and before preparation and insertion of the subsequent screw. This prevents potential damage to thread. Note that this spherical shaped lock-screw has to be inserted perpendicularly to the plate in order to be screwed properly.

6. Locking: Fully seat the lock-screw with the screwdriver. The lock-screw should close in a curved manner the hole of the plate onto the screw head.

**Caution**
Steps 1 to 6 should be completed for each screw before starting preparation of the subsequent screw(s). If not, the axis of the screw and the prepared hole may be misaligned.

Insert a first screw into the tibia to fix the plate in the correct position; this will be enough to maintain the compression.

X-ray is then done to check overall position of osteotomy and implant (Fig. 4.8) before further insertion of the screws into the tibial diaphysis.

The internal fixation is finished when all the screws have been inserted into the plate holes (Fig. 4.9 & 4.10).

- The intact fibula does not hinder isolated tibial correction
- A collapsed lateral malleolar gutter is usually decompressed by closing the medial tibial wedge
- Sagittal plane deformity of the distal tibial joint surface can be addressed by adding anterior closing wedge to correct the flexion deformity and a posterior closing wedge to correct the extension deformity. The rotational center of the ankle in lateral view should be in line with the mid-diaphyseal axis of the tibia. Otherwise translational adjustment has to be done.
Step 5 • Fibular Osteotomy

An additional distal fibular osteotomy may be needed after the distal tibial osteotomy. This can be performed with a lateral approach and use of the fibular plate for the stabilization of the osteotomy.

Exposure

The fibula is approached with a longitudinal lateral skin incision. Potential branches of the superficial peroneal nerve are retracted. The distal tibia is exposed by further preparation anteriorly to the fibula.

Preparation and performing of the osteotomy

To lengthen the fibula, two K-wires are inserted to mark the horizontal cuts of the Z-shaped osteotomy of fibula.

The distal horizontal cut is performed anteriorly whereas the proximal horizontal cut is done posteriorly.

The vertical cut is usually 2 cm longer than the planned lengthening to assure a 2 cm overlap.

To rotate the fibula, an oblique cut from the dorsal-proximal point to the anterior-distal one is done, which allows to rotate, shorten or lengthen the distal fibula.

The fixation of the plate is performed in the same way as for the tibial plates.
**Step 6 • Closure and End of the Procedure**

6-1 Final check by fluoroscopy (Fig. 6-1 & 6-1a).

The skin is closed with interrupted non-absorbable 3-O sutures (Fig. 6-2).

A drain is not used routinely.

A thick compressive dressing is applied and the foot placed in a reusable prefab splint.

The tourniquet is deflated.

**Step 7 • Postoperative Care**

7-1 The foot is protected by a removable short leg cast in neutral foot position for 6 to 8 weeks.

Mobilization on crutches with partial weight-bearing of 15 to 20 kg.

Rehabilitation program starts immediately postoperatively, depending on achieved wound healing. It includes:

- passive continuous motion
- active motion without weight-bearing

Once bone healing is achieved, usually after 8 weeks, free weight-bearing as tolerated is allowed.

Thereafter, a walker or stabilizing shoe may be recommended to be used during other 4 to 8 weeks for walks on uneven ground and for professional work outside.

Athletes should anticipate to return to sport in 8 to 12 months after their reconstruction.

- Removal of hardware is not recommended earlier than 8 months after surgery.
- Under correction of the valgus deformity is corrected by revision realignment surgery. Over correction is unlikely.
- Progressive ankle arthritis may need further surgical treatment. However, total ankle arthroplasty and ankle fusion are facilitated in the well aligned arthritic ankle.
Integra Tibiaxys Instrumentation Set

Instruments

1. K-wire - diam. 1.6 mm - L. 150 mm
2. K-wire - diam. 2.5 mm - L. 200 mm
3. Wedge thickness 3 mm
4. Wedge thickness 6 mm
5. Wedge thickness 9 mm
6. Drilling guide - diam. 3.0 mm
7. Depth gauge - diam. 4.0 mm screws
8. Compression guide
9. Screw for compression forceps diam. 4 mm - L. 40 mm
10. Screw for compression forceps diam. 4 mm - L. 55 mm
11. Screw for compression forceps diam. 4 mm - L. 60 mm
12. Drilling guide - variable angle screw
13. Screwdriver torx T10
14. Depth gauge diam. 3.5 mm screws
15. AO Screwdriver - diam. 2.0 mm - L. 76 mm - HEX
16. AO Screwdriver - diam. 2.5 mm - L. 76 mm - HEX
17. AO Drill - diam. 2.7 mm - L. 125 mm
18. AO Drill - diam. 3.0 mm - L. 190 mm
19. Drilling guide - diam. 2.7 mm
20. Screwdriver - diam. 2.0 mm - L. 180 mm - HEX
21. Screwdriver diam. 2.5 - L. 191mm - HEX
22. Compression forceps - L. 260mm
# Ordering Information

## Ankle Arthrodesis Plates

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 010SND</td>
<td>L. medial anterior plate</td>
</tr>
<tr>
<td>150 020SND</td>
<td>L. lateral anterior plate</td>
</tr>
<tr>
<td>150 110SND</td>
<td>R. medial anterior plate</td>
</tr>
<tr>
<td>150 120SND</td>
<td>R. lateral anterior plate</td>
</tr>
</tbody>
</table>

## Fibula Plates

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 514SND</td>
<td>4 hole fibula plate</td>
</tr>
<tr>
<td>150 516SND</td>
<td>6 hole fibula plate</td>
</tr>
</tbody>
</table>

## Osteotomy Plates

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 130SND</td>
<td>Medial right / Lateral left</td>
</tr>
<tr>
<td>150 010SND</td>
<td>Lateral right / Medial left</td>
</tr>
<tr>
<td>150 040SND</td>
<td>Medial</td>
</tr>
</tbody>
</table>

## Surfix Standard Screw

### Diam 3.5mm + Lock Screw

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>285 310SND</td>
<td>10 mm</td>
</tr>
<tr>
<td>285 312SND</td>
<td>12 mm</td>
</tr>
<tr>
<td>285 314SND</td>
<td>14 mm</td>
</tr>
<tr>
<td>285 316SND</td>
<td>16 mm</td>
</tr>
<tr>
<td>285 318SND</td>
<td>18 mm</td>
</tr>
<tr>
<td>285 320SND</td>
<td>20 mm</td>
</tr>
<tr>
<td>285 322SND</td>
<td>22 mm</td>
</tr>
<tr>
<td>285 324SND</td>
<td>24 mm</td>
</tr>
<tr>
<td>285 326SND</td>
<td>26 mm</td>
</tr>
<tr>
<td>285 328SND</td>
<td>28 mm</td>
</tr>
<tr>
<td>285 330SND</td>
<td>30 mm</td>
</tr>
<tr>
<td>285 332SND</td>
<td>32 mm</td>
</tr>
<tr>
<td>285 334SND</td>
<td>34 mm</td>
</tr>
<tr>
<td>285 336SND</td>
<td>36 mm</td>
</tr>
<tr>
<td>285 338SND</td>
<td>38 mm</td>
</tr>
<tr>
<td>285 340SND</td>
<td>40 mm</td>
</tr>
<tr>
<td>285 344SND</td>
<td>44 mm</td>
</tr>
<tr>
<td>285 348SND</td>
<td>48 mm</td>
</tr>
<tr>
<td>285 350SND</td>
<td>50 mm</td>
</tr>
</tbody>
</table>

## Cortical Screw

### Diam 4.0mm + Diam 6.0 Head

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 240SND</td>
<td>40 mm</td>
</tr>
<tr>
<td>150 242SND</td>
<td>42 mm</td>
</tr>
<tr>
<td>150 246SND</td>
<td>46 mm</td>
</tr>
<tr>
<td>150 250SND</td>
<td>50 mm</td>
</tr>
<tr>
<td>150 255SND</td>
<td>55 mm</td>
</tr>
<tr>
<td>150 260SND</td>
<td>60 mm</td>
</tr>
<tr>
<td>150 265SND</td>
<td>65 mm</td>
</tr>
<tr>
<td>150 270SND</td>
<td>70 mm</td>
</tr>
<tr>
<td>150 275SND</td>
<td>75 mm</td>
</tr>
<tr>
<td>150 280SND</td>
<td>80 mm</td>
</tr>
<tr>
<td>150 285SND</td>
<td>85 mm</td>
</tr>
<tr>
<td>150 290SND</td>
<td>90 mm</td>
</tr>
<tr>
<td>150 200SND</td>
<td>100 mm</td>
</tr>
</tbody>
</table>

## Surfix Alpha Screw

### Diam 3.5mm + Lock Screw

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>295 310SND</td>
<td>10 mm</td>
</tr>
<tr>
<td>295 312SND</td>
<td>12 mm</td>
</tr>
<tr>
<td>295 314SND</td>
<td>14 mm</td>
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<tr>
<td>295 316SND</td>
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<td>295 322SND</td>
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<td>295 324SND</td>
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<td>295 326SND</td>
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<td>295 328SND</td>
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<td>295 330SND</td>
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<td>295 332SND</td>
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<td>295 334SND</td>
<td>34 mm</td>
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<tr>
<td>295 336SND</td>
<td>36 mm</td>
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<tr>
<td>295 338SND</td>
<td>38 mm</td>
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<tr>
<td>295 340SND</td>
<td>40 mm</td>
</tr>
<tr>
<td>295 344SND</td>
<td>44 mm</td>
</tr>
<tr>
<td>295 348SND</td>
<td>48 mm</td>
</tr>
<tr>
<td>295 350SND</td>
<td>50 mm</td>
</tr>
</tbody>
</table>

## Container

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>159 991ND</td>
<td>Complete Set, composed of: Base</td>
</tr>
<tr>
<td>159 960ND</td>
<td>Lid</td>
</tr>
<tr>
<td>996 200ND</td>
<td>Silicone wedge</td>
</tr>
</tbody>
</table>

## Ordering Information

- **Catalog Number**
- **Description**
## Integra Tibiaxys Instrumentation Set

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 115 116ND</td>
<td>K-wire - diam. 1.6 mm - L. 150 mm</td>
</tr>
<tr>
<td>2. 115 225ND</td>
<td>K-wire - diam. 2.5 mm - L. 200 mm</td>
</tr>
<tr>
<td>3. 159 103ND</td>
<td>Wedge thickness 3 mm</td>
</tr>
<tr>
<td>4. 159 106ND</td>
<td>Wedge thickness 6 mm</td>
</tr>
<tr>
<td>5. 159 109ND</td>
<td>Wedge thickness 9 mm</td>
</tr>
<tr>
<td>6. 159 130ND</td>
<td>Drilling guide - diam. 3.0 mm</td>
</tr>
<tr>
<td>7. 159 400ND</td>
<td>Depth gauge - diam. 4.0 mm screws</td>
</tr>
<tr>
<td>8. 159 635ND</td>
<td>Compression guide</td>
</tr>
<tr>
<td>9. 159 740ND</td>
<td>Screw for compression forceps diam. 4 mm - L. 40 mm</td>
</tr>
<tr>
<td>10. 159 755ND</td>
<td>Screw for compression forceps diam. 4 mm - L. 55 mm</td>
</tr>
<tr>
<td>11. 159 760ND</td>
<td>Screw for compression forceps diam. 4 mm - L. 60 mm</td>
</tr>
<tr>
<td>12. 219 035ND</td>
<td>Drilling guide - variable angle screw</td>
</tr>
<tr>
<td>13. 219 135ND</td>
<td>Screwdriver torx T10</td>
</tr>
<tr>
<td>14. 219 335ND</td>
<td>Depth gauge diam. 3.5 mm screws</td>
</tr>
<tr>
<td>15. 219 435ND</td>
<td>AO Screwdriver - diam. 2.0 mm - L. 76 mm - HEX</td>
</tr>
<tr>
<td>16. 219 445ND</td>
<td>AO Screwdriver - diam. 2.5 mm - L. 76 mm - HEX</td>
</tr>
<tr>
<td>17. 219 535 ND</td>
<td>AO Drill - diam. 2.7 mm - L. 125 mm</td>
</tr>
<tr>
<td>18. 219 545ND</td>
<td>AO Drill - diam. 3.0 mm - L. 190 mm</td>
</tr>
<tr>
<td>19. 219 635ND</td>
<td>Drilling guide - diam. 2.7 mm</td>
</tr>
<tr>
<td>20. 219 835ND</td>
<td>Screwdriver - diam. 2.0 mm - L. 180 mm - HEX</td>
</tr>
<tr>
<td>21. 219 845ND</td>
<td>Screwdriver diam. 2.5 - L. 191mm - HEX</td>
</tr>
<tr>
<td>22. 219 960ND</td>
<td>Compression forceps - L. 260mm</td>
</tr>
</tbody>
</table>
Availability of these products might vary from a given country or region to another, as a result of specific local regulatory approval or clearance requirements for sale in such country or region.

- Always refer to the appropriate instructions for use for complete clinical instructions.
- Non contractual document. The manufacturer reserves the right, without prior notice, to modify the products in order to improve their quality.
- Warning: Applicable laws restrict these products to sale by or on the order of a physician.

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Parc Technologique de la Porte des Alpes
69800 Saint Priest–France