

# ADVANSYS™

PLATING SYSTEM



**SURGICAL TECHNIQUE**

**LOWER  
EXTREMITY  
SOLUTIONS**

 **INTEGRA™**  
Extremity Reconstruction

# ADVANSYS™

## DORSAL LISFRANC PLATE

### Indications

The Dorsal Lisfranc Plate is intended for fractures, fusions, osteotomies and replantations of small bones at the tarsometatarsal joints (Lisfranc Joints).

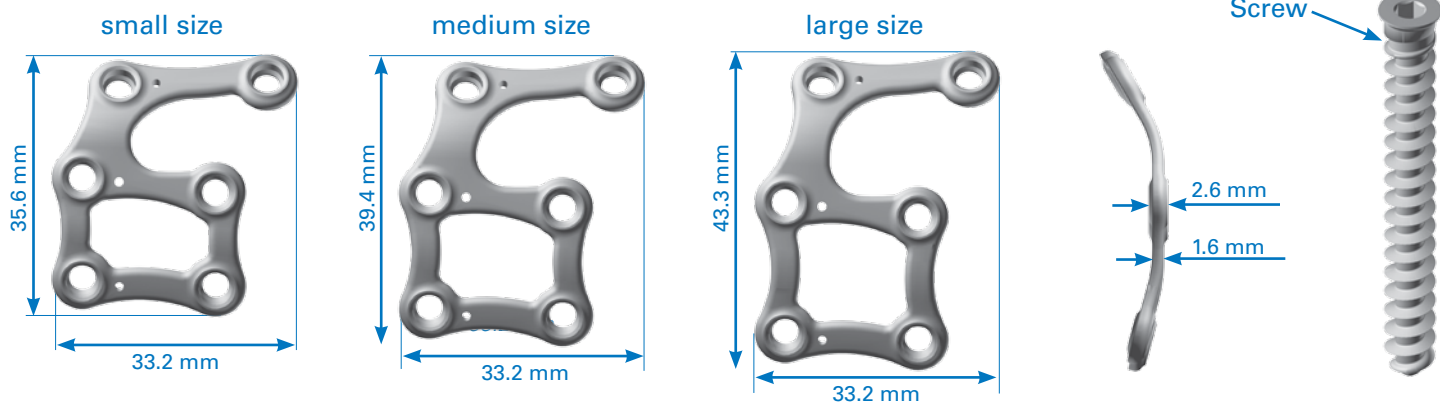
### Contraindications

The implant should not be used in a patient who has currently, or who has a history of:

- Active local or systemic infection
- Severe peripheral vascular disease
- Insufficient quality or quantity of bone to permit stabilization of the arthrodesis
- Conditions that restrict the patient's ability or willingness to follow postoperative instructions during the healing process
- Suspected or documented metal allergy or intolerance

### Description

- 3 implant sizes:
  - 3 right and 3 left plates (small, medium, large)
- 3.5mm diameter range of screw lengths:
  - 10-34mm in 2mm increments
- Surfix® Locking Technology
- Material: Stainless Steel



### Surgical Site Preparation

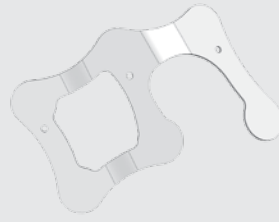
The articular surfaces should be prepared using standard technique to resect the necessary amount of cartilage and, if necessary, to remove bone graft material.

Obtain adequate reduction and provisional fixation using guide wires or reduction forceps.

## PREPARE



115 101ND  
K-wire Diam. 1.0mm



169 021ND to 169 023ND/  
169 031ND to 169 033ND  
Trial Plates



219 735ND  
Plate Benders

# Surgical Technique

Designed in conjunction with Robert Anderson, MD; Bruce Cohen, MD; W. Hodges Davis, MD; and Carroll Jones, MD



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.

## Step 1 • Trial Plate Positioning

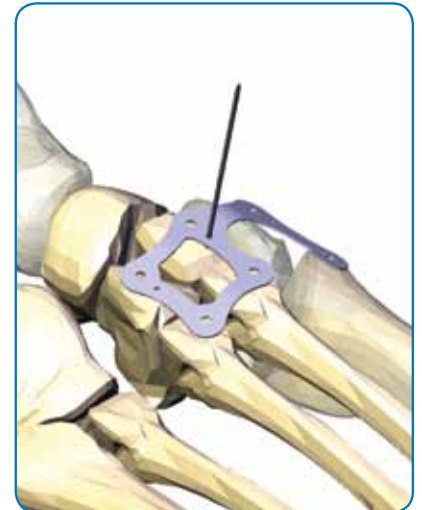
Use the trial plates to determine the appropriate implant size.

Trials are positioned dorsally (figure 1-1), in order to provide:

- 3 distal holes placed on the bases of the 1st, 2nd and 3rd metatarsals
- 3 proximal holes placed on the 3 cuneiforms

A k-wire (115 101ND) is used for temporary fixation of the trial, or the plate. Additional k-wires may be used to provide additional stability.

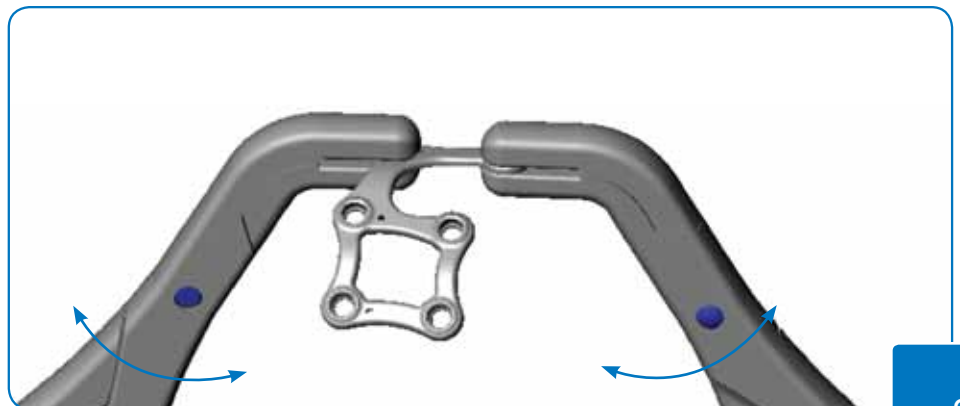
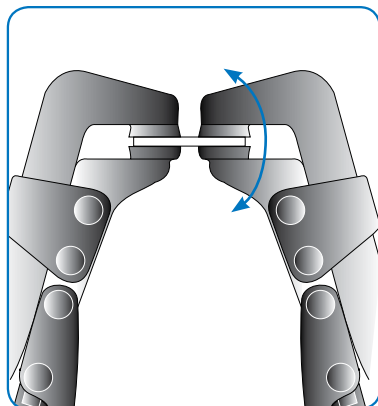
The trials are flexible and allow contouring to the dorsal surface of the cuneiforms and metatarsals. The contoured trial may be used as a template for contouring the final implant.

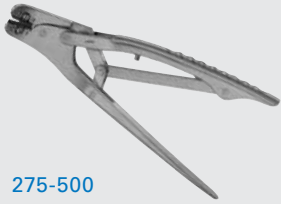


## Step 2 • Plate Contouring

The plates are pre-bent to better fit the anatomy of the midfoot. However, when deemed necessary by the surgeon, the plate may be further contoured using plate benders (219 735ND).

**Warning:** It is imperative that the bending be implemented between two consecutive locking holes. If this is not the case, the intermediate locking threads may be damaged or deformed, thus preventing optimal functioning of the lock-screw mechanism. The plate will weaken with excessive bending. Do not bend the plate excessively to insure the metal is not compromised.



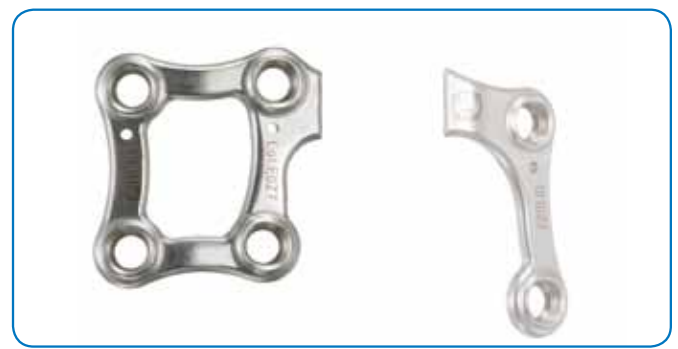


275-500  
Plate Cutter (Jarit)

**PREPARE**

**Step 3 • Optional Plate Cutting**

An optional plate cutter (275-500 Jarit) may be used to remove the medial flange of the plate. Care should be taken to cut the flange as close as possible to the raised area around the middle posterior screw (2nd cuneiform screw).



**Step 4 • Implant Positioning**

Position the selected plate in the desired location. The plate can be introduced over the k-wires used to temporarily fix the trial plate.



## PREPARE



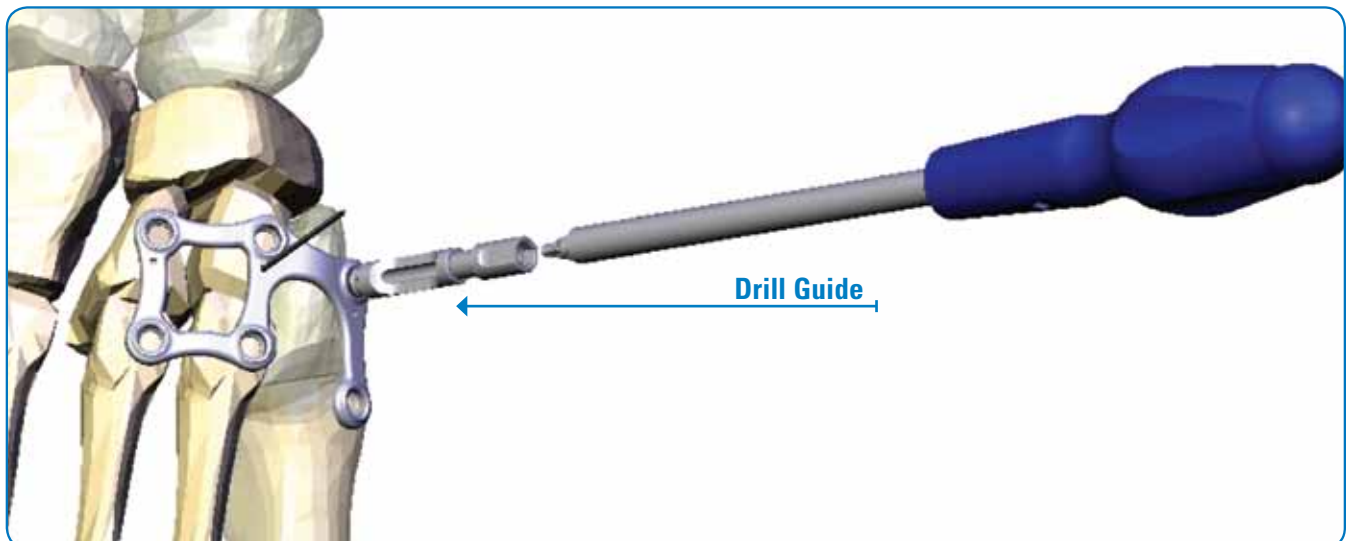
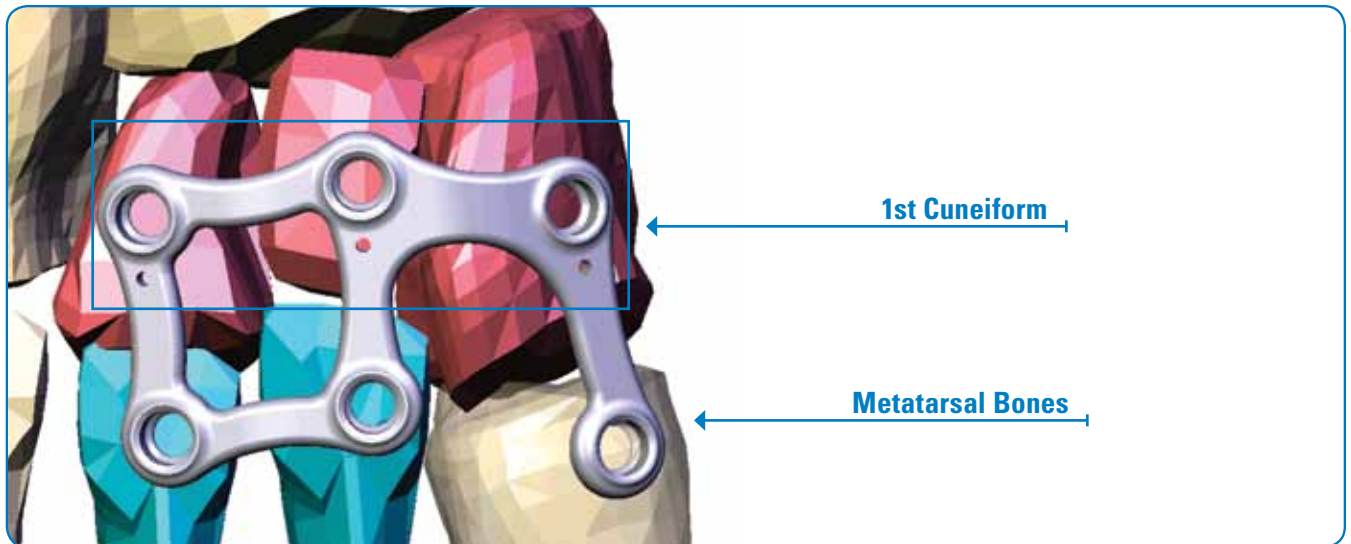
219 635ND  
Drill Guides

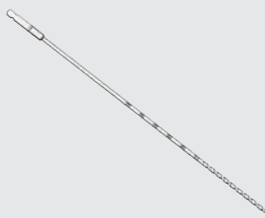


219 835ND  
Hex Screwdriver Diam. 2.0mm

### Step 5 • Drill Screw Holes

K-wires may be used to temporarily hold the plate in position until the screws are inserted. Drill guides (219 635ND) are fixed to the plate in the appropriate locking hole, using the screwdriver (219 835ND). The screw holes are prepared beginning with the first cuneiform, as shown in the figures below. Note: The screws should be mono-cortical.





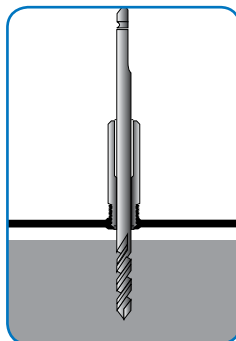
219 535ND  
Diam. 2.7mm Drill



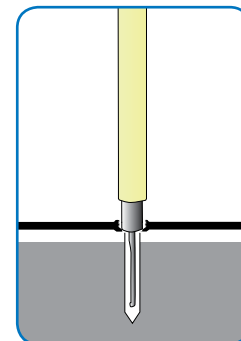
219 335ND  
Depth Gauge

## Step 6 • Screw Insertion

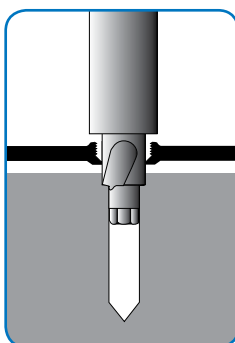
(A) Prepare holes with the 2.7 mm drill (219 535ND) through the drill guide. The screw length can be determined from the calibrated scale on the drill. The depth is determined from the top side of the drill guide.



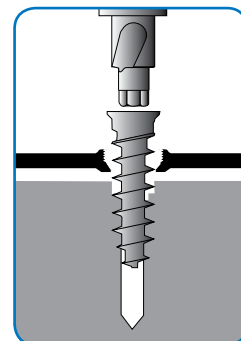
(B) Alternately, measure the necessary screw length using the depth gauge (219 335ND). It can be used with or without the drill guide. Each depth gauge has two sets of markings to use with or without the drill guide.



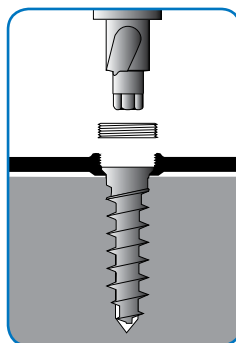
(C) Remove the drill guide and chamfer the drill hole with the screwdriver. Ensure that the threaded hole is not damaged when performing the chamfering.



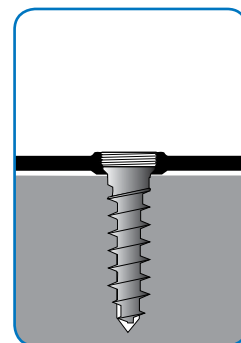
(D) Insert the screw into the prepared hole and tighten until the screw is fully seated in the plate. Clean the threaded hole before and after introducing the screw. (Unlike a traditional locking mechanism, the screw can be continually tightened to contour the plate to the bone.)



(E) Place the lock-screw on the appropriate screwdriver. 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.



(F) Fully seat the lock-screw using the screwdriver (over tightening the lock-screw provides no additional benefit and increases the chances of stripping). When it is fully inserted, the lock-screw should be flush with the top of the plate.



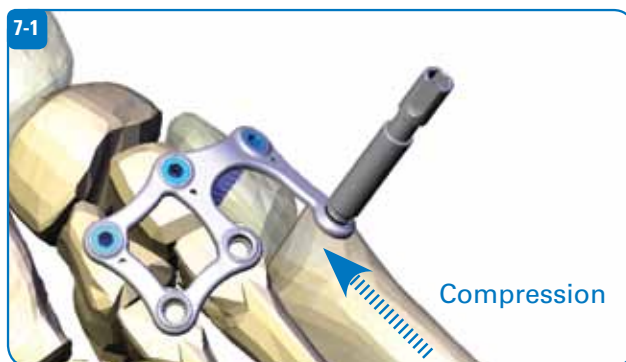
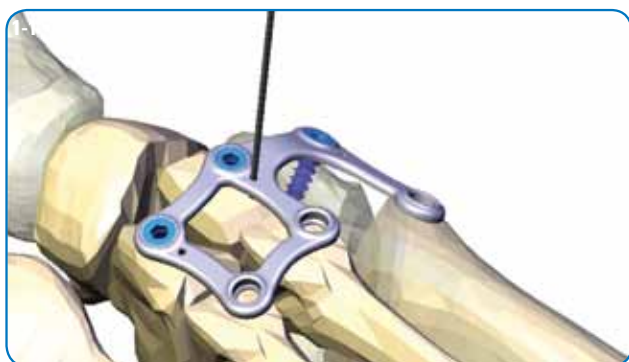
Warning: Steps A through F should be completed for each screw before beginning preparation of the subsequent screw(s). If not, the axes of the screw and prepared hole may be misaligned.

## Step 7 • Arthrodesis Reduction

After the insertion of the cuneiform screws and removal of all k-wires used for temporary fixation, compression is applied manually and is maintained to reduce the arthrodesis, as shown in figure 7-1.

Repeat the insertion process for each hole in the base of the 1st, 2nd and 3rd metatarsals.

Final plate placement is shown in figure 7-2.



# ADVANSYS™

## MEDIAL LISFRANC PLATE

### Indications

For bone fixation such as: arthrodesis of the 1st metatarsocuneiform joint to reposition and stabilize a metatarsus primus varus:

- Lisfranc arthrodesis
- Mono or bi-cortical osteotomies or fractures near the 1st metatarsocuneiform joint

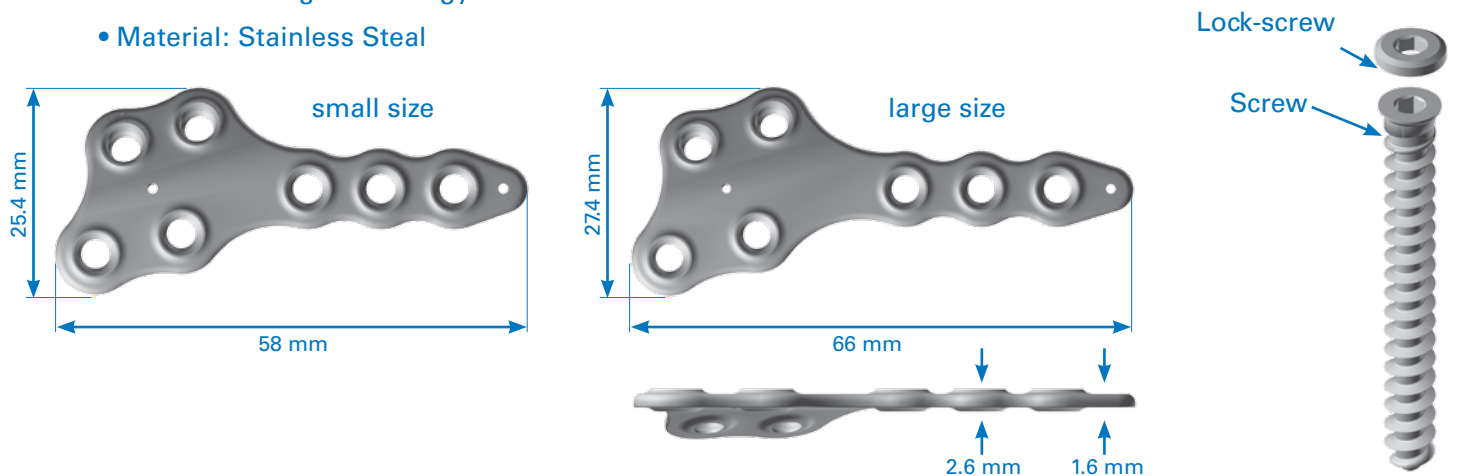
### Contraindications

The implant should not be used in a patient who has currently, or who has a history of:

- Active local or systemic infection
- Severe peripheral vascular disease
- Insufficient quality or quantity of bone to permit stabilization of the arthrodesis
- Conditions that restrict the patient's ability or willingness to follow postoperative instructions during the healing process
- Suspected or documented metal allergy or intolerance

### Description

- 2 implant sizes:
  - 2 right and 2 left plates (small and large sizes)
- 3.5mm diameter range of screw lengths:
  - 10-34mm in 2mm increments
- Surfix® Locking Technology
- Material: Stainless Steel



### Surgical Site Preparation

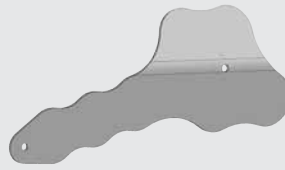
The articular surfaces should be prepared using standard technique to resect the necessary amount of cartilage and, if necessary, to remove bone graft material.

Obtain adequate reduction and provisional fixation using guide wires or reduction forceps.

## PREPARE



115 101ND  
K-wire Diam. 1.0mm



169 041ND, 169 042ND, 169 051ND, 169 052ND  
Trial Plates



219 735ND  
Plate Benders

# Surgical Technique

Designed in conjunction with Robert Anderson, MD; Bruce Cohen, MD; W. Hodges Davis, MD; and Carroll Jones, MD



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.

## Step 1 • Trial Plate Positioning

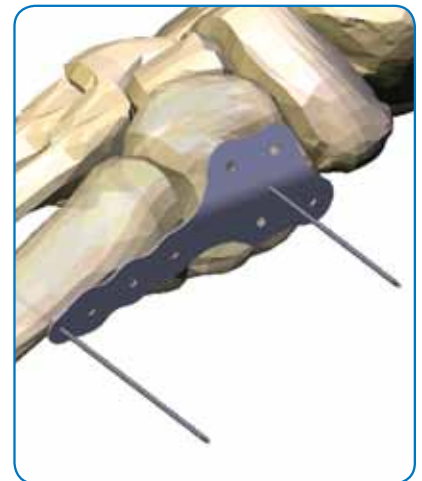
Trial plates (169 041ND, 169 042ND, 169 051ND, 169 052ND) are used to determine the appropriate implant size.

Trials are positioned medially in order to provide:

- 3 distal holes on the proximal part of the 1st metatarsal
- 4 proximal holes on the 1st cuneiform

Two k-wires (115 101ND) are used for temporary fixation of the trial and the plate.

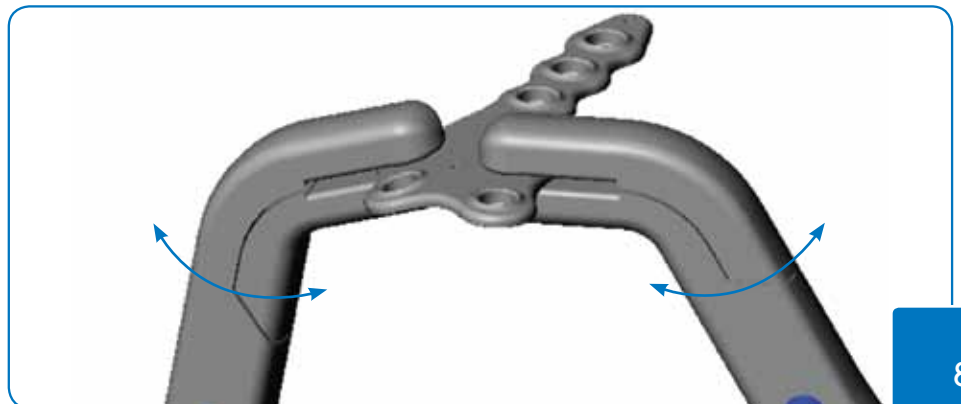
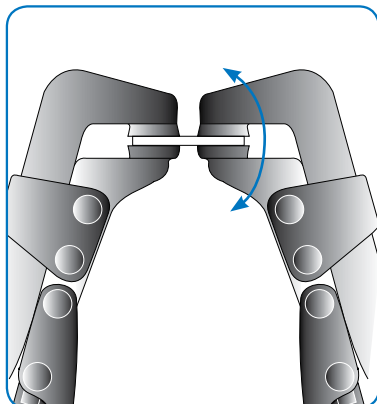
The trials are flexible and allow contouring to the medial surface of the cuneiform, metatarsal and, potentially the navicular bone. The contoured trial may be used as a template for contouring the final implant.



## Step 2 • Plate Contouring

The plates are pre-bent to better fit the anatomy of the midfoot. However, when deemed necessary by the surgeon, the plate may be further contoured using plate benders (219 735ND).

**Warning:** It is imperative that the bending be implemented between two consecutive locking holes. If this is not the case, the intermediate locking threads may be damaged or deformed, thus preventing optimal functioning of the lock-screw mechanism. The plate will weaken with excessive bending. Do not bend the plate excessively to insure the metal is not compromised.





219 635ND  
Drill Guide

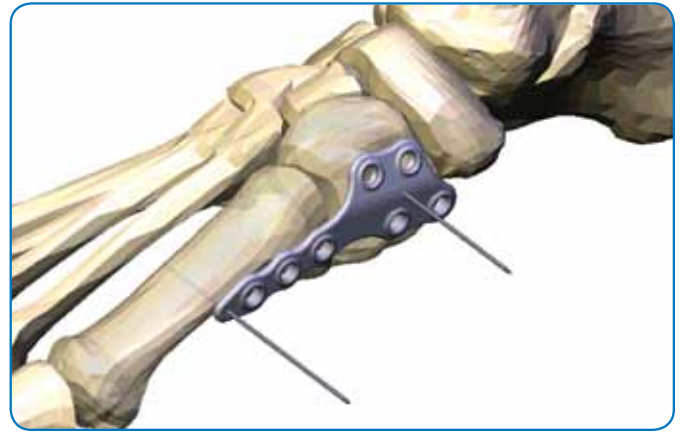


219 835ND  
Hex Screwdriver Diam. 2.0mm

PREPARE

### Step 3 • Implant Positioning

Position the selected plate in the desired location. The plate can be introduced over the k-wires used to temporarily fix the trial plate.



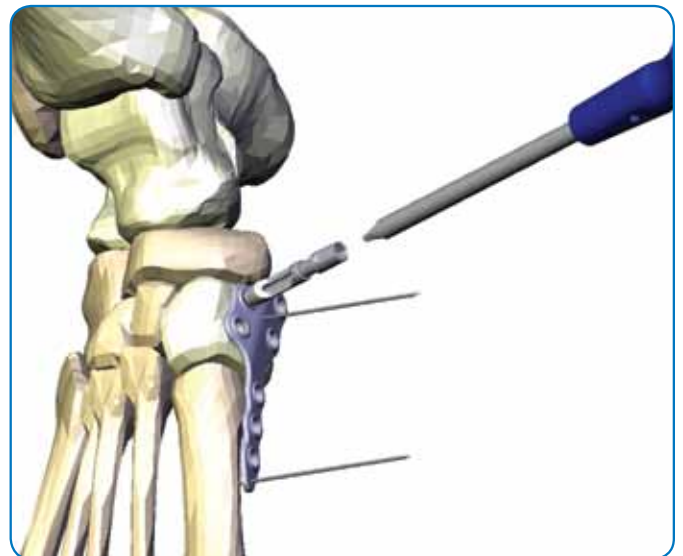
### Step 4 • Drill Screw Holes

Holes are prepared beginning with the 1st cuneiform, as shown in the adjacent figure.

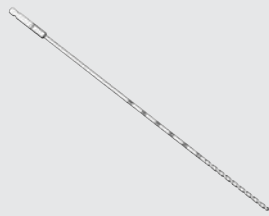
K-wires may be used to temporarily hold the plate in position until the screws are inserted.

Drill guides (219 635ND) are fixed to the plate on the appropriate locked hole, using the screwdriver (219 835ND).

Note: The screws should be mono-cortical.



## PREPARE



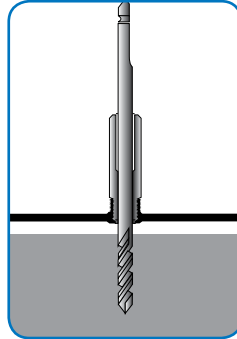
219 535ND  
Diam. 2.7mm Drill



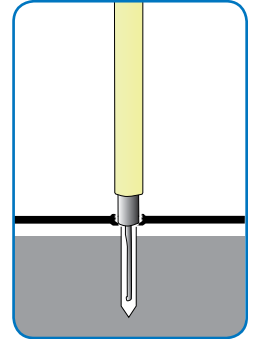
219 335ND  
Depth Gauge

### Step 5 • Screw Insertion

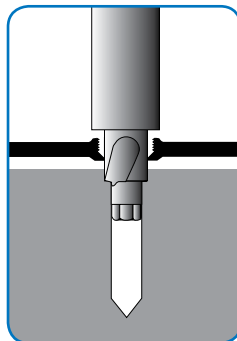
- Ⓐ Prepare holes with the 2.7 mm drill (219 535ND) through the drill guide. The screw length can be determined from the calibrated scale on the drill. The depth is determined from the top side of the drill guide.



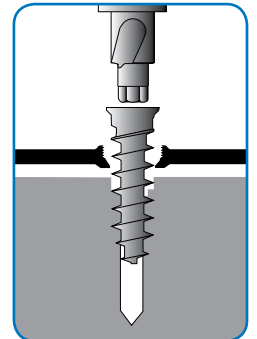
- Ⓑ Alternately, measure the necessary screw length using the depth gauge (219 335ND). It can be used with or without the drill guide. Each depth gauge has two sets of markings to use with or without the drill guide.



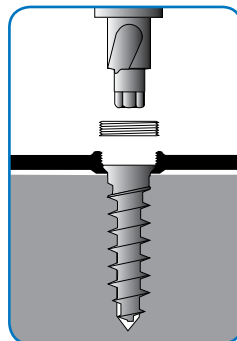
- Ⓒ Remove the drill guide and chamfer the drill hole with the screwdriver. Ensure that the threaded hole is not damaged when performing the chamfering.



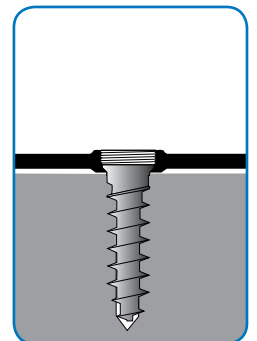
- Ⓓ Insert the screw into the prepared hole and tighten until the screw is fully seated in the plate. Clean the threaded hole before and after introducing the screw. (Unlike a traditional locking mechanism, the screw can be continually tightened to contour the plate to the bone.)



- Ⓔ Place the lock-screw on the appropriate screwdriver. 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.



- Ⓕ Fully seat the lock-screw using the screwdriver (over tightening the lock-screw provides no additional benefit and increases the chances of stripping). When it is fully inserted, the lock-screw should be flush with the top of the plate.



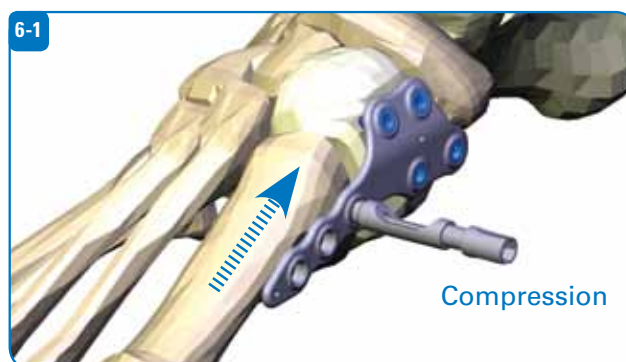
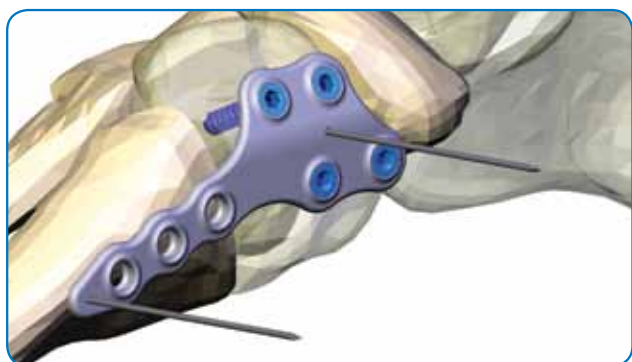
Warning: Steps A through F should be completed for each screw before beginning preparation of the subsequent screw(s). If not, the axes of the screw and prepared hole may be misaligned.

## Step 6 • Arthrodesis Reduction

After insertion of the cuneiform screws and removal of all k-wires used for temporary fixation, compression is applied manually and is maintained to reduce the arthrodesis, as shown in figure 6-1.

Repeat the screw insertion procedure for the holes in the base of the 1st metatarsal.

Final plate placement is shown in figure 6-2.

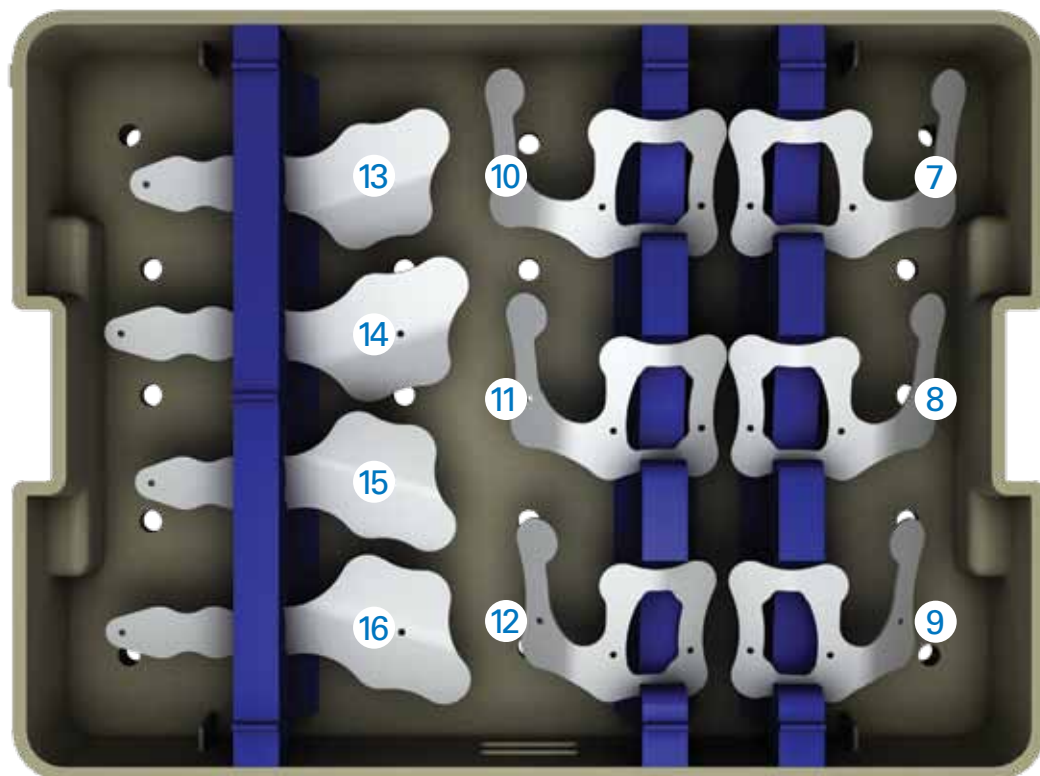
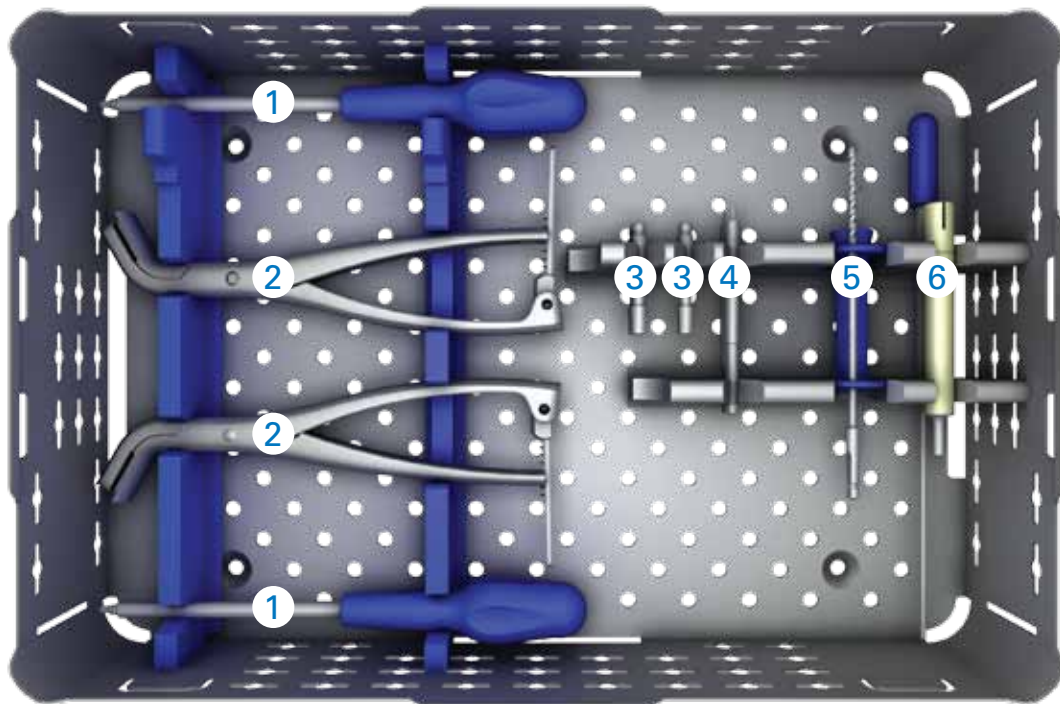




# ADVANSYS™

## PLATING SYSTEM

### Instrumentation



## Instruments

	Reference	Description
1	219 835ND	Hex 2.0mm screwdriver
2	219 735ND	Plate Bender
3	219 635ND	Drill guide diam. 2.7mm
4	219 435ND	AO Hex powerdriver diam. 2.0mm
5	219 535ND	2.7 diam drill
6	219 335ND	Depth gauge
7	169 033ND	Dorsal trial plate left large size
8	169 032ND	Dorsal trial plate left medium size
9	169 031ND	Dorsal trial plate left small size
10	169 023ND	Dorsal trial plate right large size
11	169 022ND	Dorsal trial plate right medium size
12	169 021ND	Dorsal trial plate right small size
13	169 041ND	Medial trial plate right small size
14	169 042ND	Medial trial plate right large size
15	169 051ND	Medial trial plate left small size
16	169 052ND	Medial trial plate left large size

# ADVANSYS™

## PLATING SYSTEM

### D.L.P. Dorsal Lisfranc Plate

References	Description
181 021SND	Right - Small size
181 022SND	Right - Medium size
181 023SND	Right - Large size
181 031SND	Left - Small size
181 032SND	Left - Medium size
181 033SND	Left - Large size

### M.L.P. Medial Lisfranc Plate

References	Description
181 041SND	Right - Small size
181 042SND	Right - Large size
181 051SND	Left - Small size
181 052SND	Left - Large size

### Instrument Container

References	Designation
169 102ND	Container
169 112ND	Base
169 103ND	Lid
169 106ND	Cylinder
169 107ND	Module

### Non Sterile Implant Container

References	Container
188 202ND	Container
188 212ND	Base
188 216ND	Rack
169 103ND	Lid
169 219ND	Mat

• Implantation procedures are described in the surgical technique.

The manufacturer reserves the right, without prior notice, to modify the products.

• WARNING: Federal law (USA) restricts this device to sale by or on the order of a physician.

### INSTRUMENTATION

References	Designation
219 835ND	Screwdriver / Hex 2.0mm, L. 180mm
219 435ND	Powerdriver / AO, hex 2.0mm, L. 76mm
219 635ND	Drilling guide, diam. 2.7mm
219 535ND	Drill, diam. 2.7mm
219 735ND	Plate Benders, diam. 3.5 hole, L. 171mm
219 335ND	Depth gauge, diam. 3.5mm screws
115 101ND	K-wire, diam. 1.0mm, L. 100mm
169 021ND	Dorsal trial plate, right, small
169 022ND	Dorsal trial plate, right, medium
169 023ND	Dorsal trial plate, right, large
169 031ND	Dorsal trial plate, left, small
169 032ND	Dorsal trial plate, left, medium
169 033ND	Dorsal trial plate, left, large
169 041ND	Medial trial plate, right, small
169 042ND	Medial trial plate, right, large
169 051ND	Medial trial plate, left, small
169 052ND	Medial trial plate, left, large

Jarit reference  
275-500

Plate cutter (optional)

### Sterile stainless steel screws diam. 3.5 mm + lock-screw

References	Description
286 310SND	Length 10mm
286 312SND	Length 12mm
286 314SND	Length 14mm
286 316SND	Length 16mm
286 318SND	Length 18mm
286 320SND	Length 20mm
286 322SND	Length 22mm
286 324SND	Length 24mm
286 326SND	Length 26mm
286 328SND	Length 28mm
286 330SND	Length 30mm
286 332SND	Length 32mm
286 334SND	Length 34mm

186 300SND

Lock-screw, diam. 3.5 mm



**INTEGRA™**  
Extremity Reconstruction

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www.Integra-LS.com



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