

# NexFix™ MTP fusion system

ANATOMIC DESIGN FOR FIRST MTP ARTHRODESIS





## ► anatomical alignment

The NexFix™ MTP Fusion System offers a combination of anatomic low profile plates and screws designed for optimal strength and stability. The system incorporates aggressive cup and cone reamers ideal for accurate bone preparation for the treatment of 1st Metatarsophalangeal (MTP) joint arthrodesis.

### ► The MTP Fusion System Advantage

Design Feature	Advantage
Low Profile Plates	Accommodates the minimal soft tissue on top of the foot
Anatomically Contoured Plates (10° dorsiflexion and 10° of valgus)	Allows for the hallux to be fused in the proper anatomic alignment
Low-profile Locking (3.2 mm) & Non-locking (2.7 mm) screws	Achieve precise purchase with the option of locking or non-locking screws
Open Geometry Cannulated Cup and Cone Reamers	Improve ease of cleaning and clearing debris allowing for accurate preparation of the 1st MTP joint
Stainless Steel Material	Offers strength of construct, optimal locking and soft tissue compatibility



Cup and Cone Reamers

## Surgical Technique

### 1 Initial Incision



A dorsal longitudinal incision is recommended for correct exposure of the MTP joint. A medial approach may be considered in patients where healing of the skin flap may be problematic. The incision is started just proximal to the interphalangeal joint and extended across the MTP joint medial to the Extensor Hallucis Longus (EHL), deepened to the joint capsule through the subcutaneous tissue, and ending 2-3 cm proximal to the joint. The joint capsule is released and retractors are placed to expose the base of the proximal phalanx and metatarsal head.

### 2 Metatarsal Preparation



Plantar flex the phalanx to expose the metatarsal head. A 1.6 mm K-Wire is placed into the center of the metatarsal head and driven proximally into the diaphysis. Insertion of a curved elevator is recommended to protect the surrounding soft tissue and expose the articular surface. Place the cannulated metatarsal reamer over the K-Wire and gently ream the metatarsal head beginning with the largest diameter reamer until bleeding of the subchondral bone becomes visible on the joint surface.

**Notice: It is important to initiate reaming action prior to contacting bone.**

### 3 Metatarsal Reaming



The cone reamer allows barrel reaming and articular preparation in one step. Take precaution to not run the saw teeth of the reamer against the sesamoids and check the process often to avoid excessive shortening of the metatarsal head. If needed, move progressively down through the reamer sizes until the correct radius has been chosen, and the entire surface of articular cartilage has been removed. Take note of the last reamer size and color used.

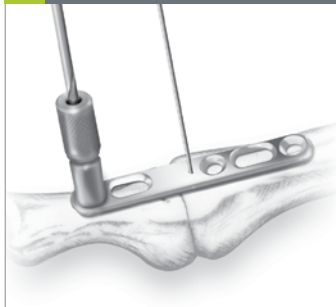
### 4 Phalangeal Reaming



Reaming of the proximal phalanx is performed in a similar fashion to the metatarsal head. Plantar flex the proximal phalanx. A curved elevator or retractor may be helpful to expose the articular surface. A 1.6 mm K-Wire is placed in the center of the base of the proximal phalanx and driven distally into the diaphysis. Care should be taken not to penetrate the interphalangeal joint. Starting with the smallest size cup reamer, gently ream the joint surface. Take care not to remove too much bone or damage the metatarsal head. Work up through the reamer sizes until the color coded radius matched the one used for the metatarsal side and the surfaces are fully conforming.

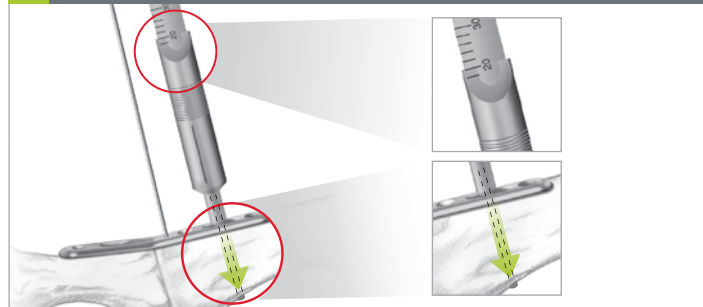
**Notice: The same size metatarsal and phalangeal reamers must be used to obtain congruent surfaces.**

### 8 Optional Threaded, Locking Drill Guide



An optional locking hole drill guide can be threaded into the plate hole for accurate locking screw alignment.

### 9 Screw Depth Measurement



Push the tip of the depth gauge through the drill hole and hook the opposite cortex. Press the barrel of the depth gauge against the surface of the plate and read the screw length. Use the self-retaining driver to pick up the appropriate screw. Verify the screw length with the measuring scale on the caddy.

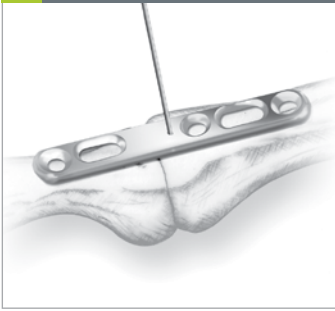
### 10 Initial Screw Placement



Use the driver to thread the screw into the hole until the screw head is flush with the plate. A high-torque driver is also available when more torque is needed. The high torque driver does not have a screw retain feature.

**Notice: When using locking screws, make certain the plate is firmly positioned against the bone to ensure the plate does not lift off the bone.**

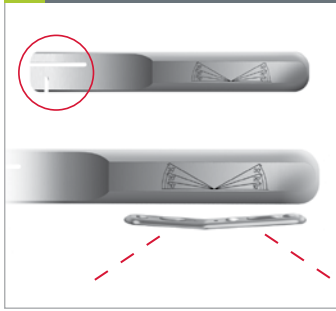
### 5 Plate Placement



Select the correct plate from the instrument tray. Place the plate on the dorsal surface of the joint with the side marked M over the metatarsal, and then provisionally attach the plate to the metatarsal and phalanx using the K-Wire hole(s) in the plate.

The plates have been built with 10° of valgus and 10° of dorsiflexion. While holding the lid from the instrument set against the plantar surface of the foot, assess the dorsiflexion of the great toe.

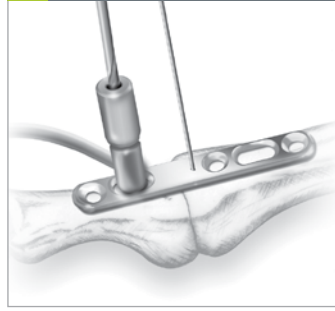
### 6 Plate Benders



The plate benders are scored to verify the angle measurement.

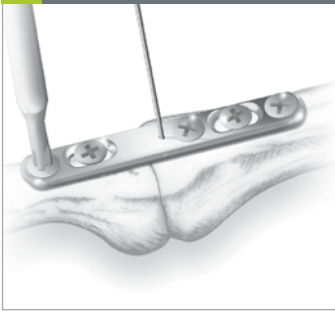
Each plate includes both circular threaded locking holes and oblong compression holes. Both style holes accommodate either the 3.2 mm locking or 2.7 mm standard screws. Only circular holes in conjunction with 3.2 mm locking screws provide locking capability. Select the screw diameter based upon the bone quality and locking preference. Use the 2.0 mm drill to prepare for the 2.7 mm screws and the 2.5 mm drill for the 3.2 mm locking screws.

### 7 Drill Guide



Use the appropriate end of the color coded drill guide to drill through the cortices of the bone.

### 11 Locking Screw Placement



Continue placing screws into the remaining plate holes as desired.

**Notice:** When placing the phalanx screws into the Recon Plate, place the distal most screw first and remove the K-Wire before placing the slightly proximal screw.

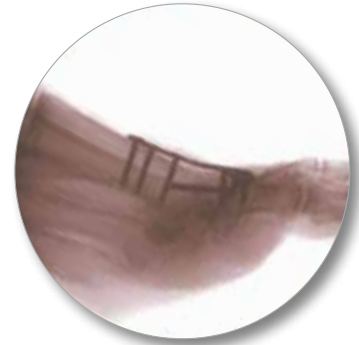
All K-Wires may be removed once the plate is securely fixed.

### 12 Interfragmentary Screw



A final screw can be directed obliquely across the plantar aspect of the joint.

Closure is performed in the normal routine fashion.



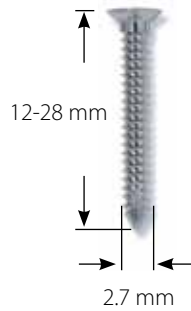
**Recon Plate**  
Post-op AP view (Top),  
Lateral view (Bottom)



MTP Primary Plates

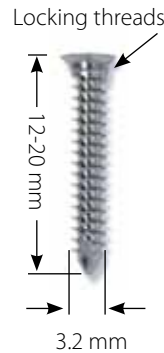


MTP Recon Plates



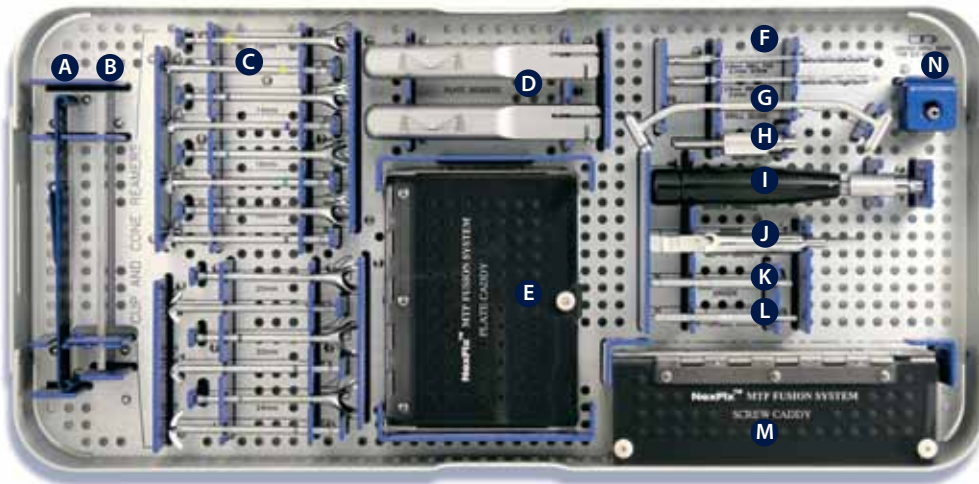
### 2.7 mm Standard Screw

- Low profile 2.7 mm screw provides sufficient fixation in most patients
- Recommended for use in the oblong compression holes
- Longer screw sizes can be directed obliquely across the plantar aspect of the joint for additional fixation



### 3.2 mm Locking Screw

- Low profile 3.2 mm locking screw can be threaded into the circular locking plate holes for an immediate stable construct
- 3.2 mm locking screws are recommended for use in the oblong compression holes with osteoporotic bone



### MTP Fusion Instrument Set

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li><b>A</b> Optional Toe Angle Measurement Device</li> <li><b>B</b> 1.6 mm (.062) K-Wires</li> <li><b>C</b> Cannulated Cup and Cone Reamers</li> <li><b>D</b> Plate Benders</li> <li><b>E</b> Plate Caddy</li> <li><b>F</b> 2.0 mm and 2.7 mm Drill Bits</li> <li><b>G</b> Drill Guide</li> </ul> | <ul style="list-style-type: none"> <li><b>H</b> Quick Connect Power Adapter</li> <li><b>I</b> Quick Connect Hand Driver</li> <li><b>J</b> Depth Gauge</li> <li><b>K</b> Self-Retaining Driver</li> <li><b>L</b> Hi-Torque Driver</li> <li><b>M</b> Screw Caddy</li> <li><b>N</b> Locking Hole Drill Guide</li> </ul> |
|---|--|



**M** Screw Selection in Screw Caddy



**E** Plate Selection in Plate Caddy

## MTP Fusion System Product Information

### Indications:





The NexFix MTP Fusion System is intended for use in providing fixation during fractures, fusions and osteotomies. The system consists of plates and screws for treatment of the phalanges and metatarsals.

### General Contraindications:

For the use of these implants for joint reconstruction include:

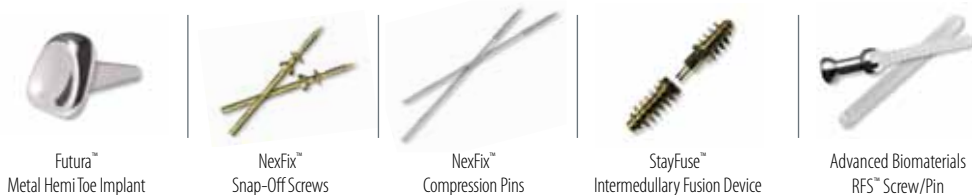
- Significant bone demineralization
- Inadequate neurovascular status
- Inadequate skin or musculo tendinous system
- Inadequate bone stock
- Active sepsis
- Psychologically unsuitable patient

## Ordering Information

	CAT#		CAT#	
<b>MTP Primary Plate</b>				
	Left, Size 2	MTP-PS2L	Right, Size 2	MTP-PS2R
	Left, Size 3	MTP-PS3L	Right, Size 3	MTP-PS3R
<b>MTP Recon Plate</b>				
	Left, Size 2	MTP-RS2L	Right, Size 2	MTP-RS2R
	Left, Size 3	MTP-RS3L	Right, Size 3	MTP-RS3R
<b>2.7 mm Standard Screw</b>				
	12 mm	MTP-2712	20 mm	MTP-2720
	14 mm	MTP-2714	24 mm	MTP-2724
	16 mm	MTP-2716	28 mm	MTP-2728
	18 mm	MTP-2718		
<b>3.2 mm Locking Screw</b>				
	12 mm	MTP-3212	18 mm	MTP-3218
	14 mm	MTP-3214	20 mm	MTP-3220
	16 mm	MTP-3216		
<b>Instrument Tray</b>				
MTP Fusion System Implant & Instrument Set				MTP-SR01
MTP Fusion System Implant & Instrument Set				*MTP-SN01

*\*purchase only*

Tornier is pleased to bring you best-in-class forefoot suite of products.



Futura™  
Metal Hemi Toe Implant

NexFix™  
Snap-Off Screws

NexFix™  
Compression Pins

StayFuse™  
Intermedullary Fusion Device

Advanced Biomaterials  
RFS™ Screw/Pin



Tornier, Inc.  
Edina, MN 55435  
USA  
+ 1 888 867 6437  
+ 1 281 494 7900  
www.tornier.com

Tornier S.A.S  
161, rue Lavoisier  
38334 Montbonnot - Saint-Ismier Cedex • France  
Tél. : 33 (0)4 76 61 35 00  
Fax : 33 (0)4 76 61 35 33  
www.tornier.com

Prior to using any Tornier device, please review the instructions for use and surgical technique for a complete listing of indications, contraindications, warnings, precautions, potential adverse events, and directions for use.

© 2011 Tornier, Inc. All rights reserved. Tornier is a registered trademark of Tornier, Inc.