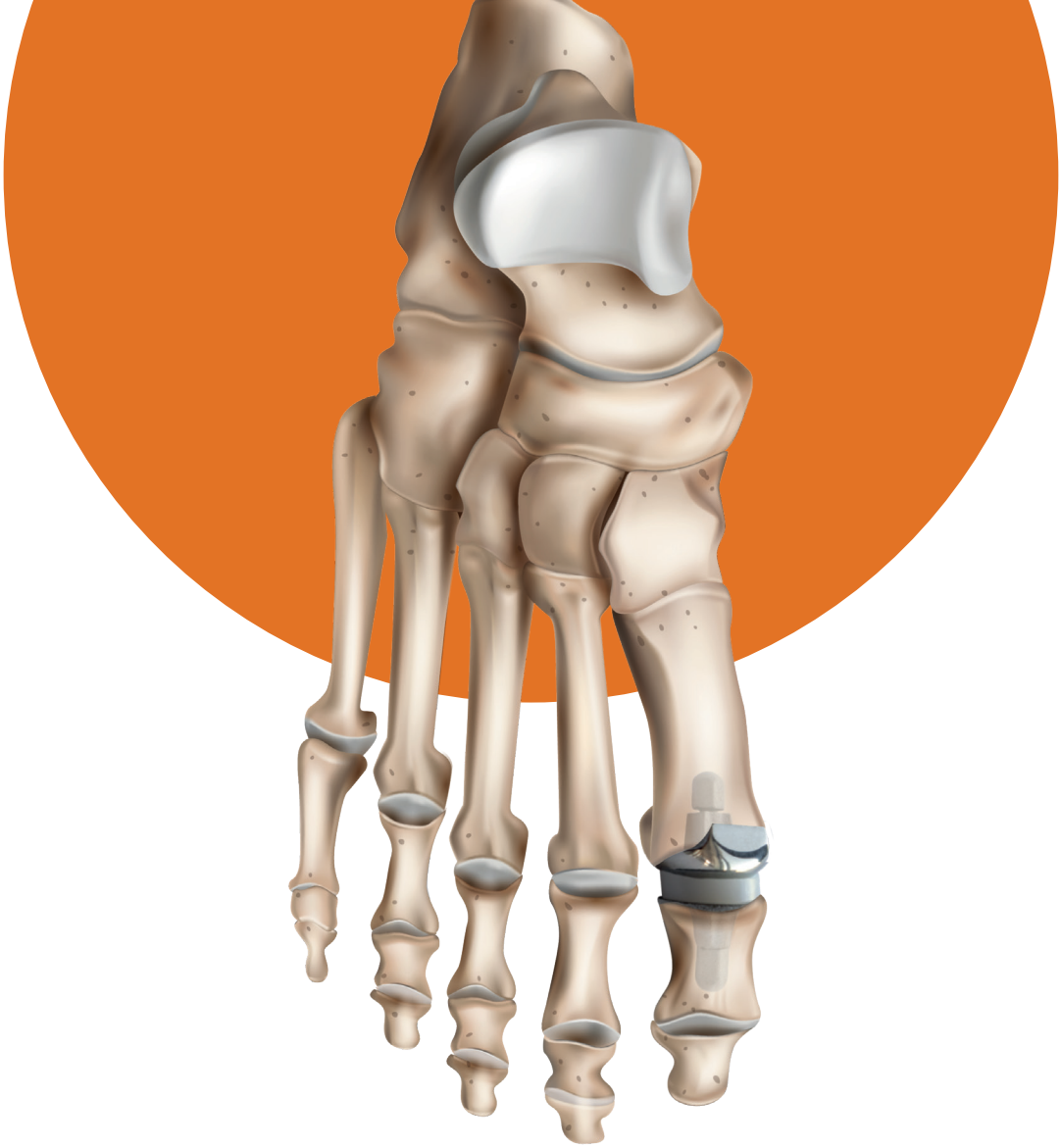

DORATEK

MTP PROSTHESIS SURGICAL TECHNIQUE

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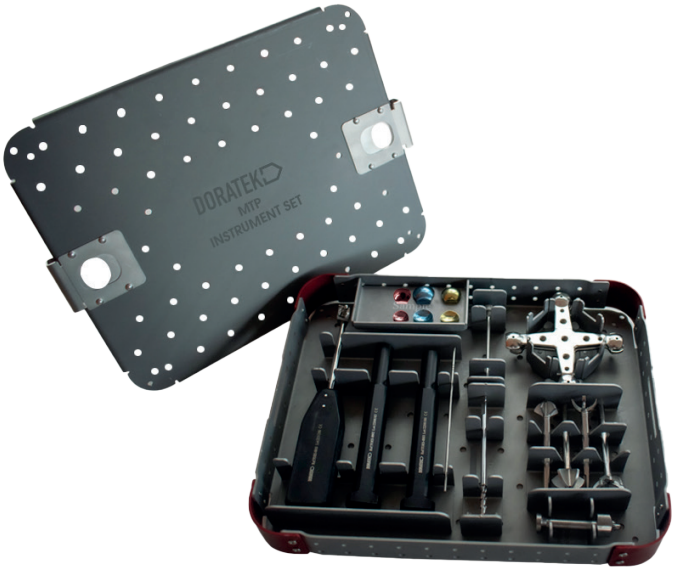
BIG TOE SURGICAL INSTRUMENTS



MTP INSTRUMNET SET CONTAINER
TOES-0001

Metatarsal Impact Provider **TOES-0002**

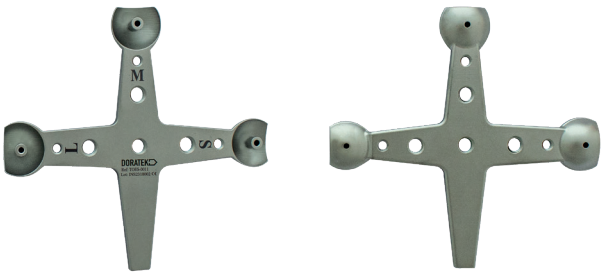
Proximal Phalanx Impact Provider **TOES-0003**

Guide Pin **TOES-0005**

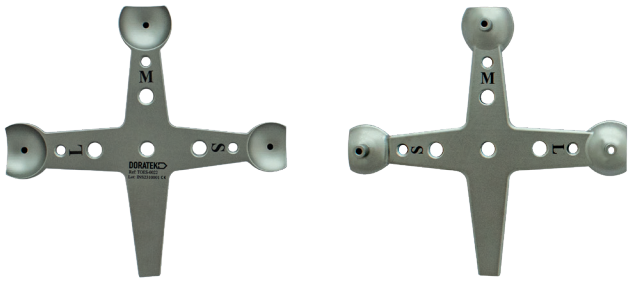
Cannulated Drills **TOES-0007**

Setting Guide **TOES-0009**

Metatarsal Dorsal Cutting Guide **TOES-0010**



Metatarsal Implant Sizer **TOES-0011**



Phalangeal Implant Sizer **TOES-0022**

Phalangeal Punch Opener **TOES-0012**

Doratek Reamer **ORT-016001- 016006**

Insert Trial Implant Large-4mm **TOES-0028**

Insert Trial Implant Large-2mm **TOES-0027**

Insert Trial Implant Large-0mm **TOES-0014**

Metatarsal Head Trial Large **TOES-0017**

Metatarsal Head Trial Medium **TOES-0016**

Metatarsal Head Trial Small **TOES-0015**

Insert Trial Implant Medium-4mm **TOES-0026**

Insert Trial Implant Medium-2mm **TOES-0025**

Insert Trial Implant Medium-0mm **TOES-0013**

Falangeal Component Trial Large **TOES-0031**

Falangeal Component Trial Medium **TOES-0030**

Falangeal Component Trial Small **TOES-0029**

Insert Trial Implant Small-4mm **TOES-0024**

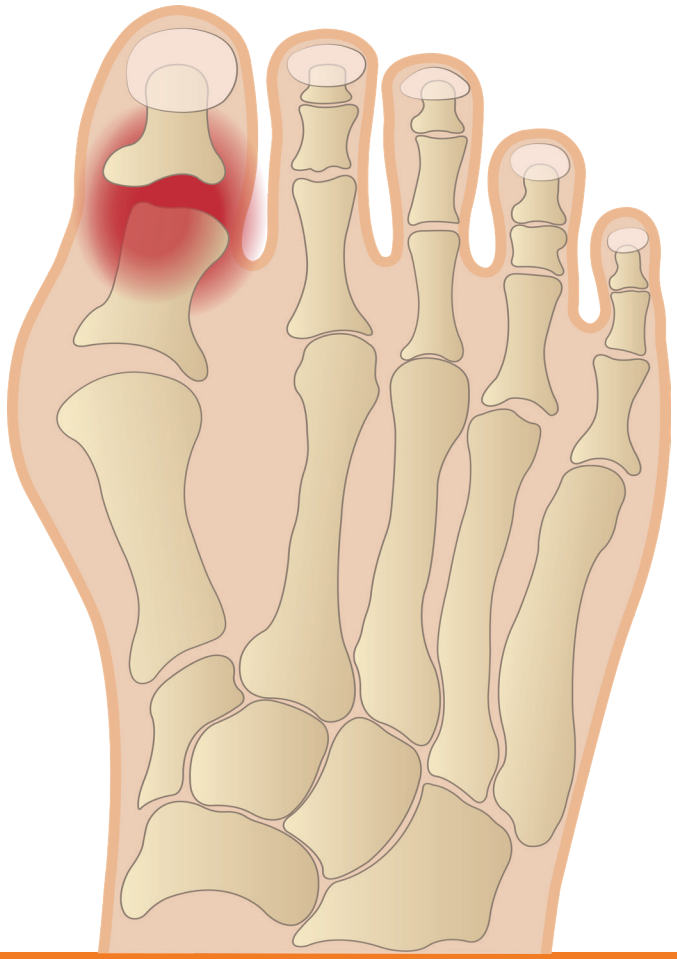
Insert Trial Implant Small-2mm **TOES-0023**

Insert Trial Implant Small-0mm **TOES-0004**

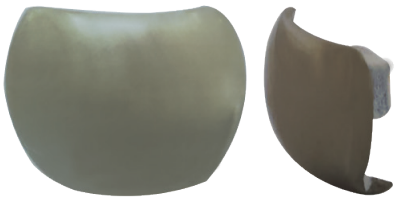
Meta-Fal Stem Component Trial Large **TOES-0034**

Meta-Fal Stem Component Trial Medium **TOES-0033**

Meta-Fal Stem Component Trial Small **TOES-0032**



FALANGEAL INSERT		
Referance	**Size**	**Thickness**
MTPI-0000	Small	0mm
MTPI-0002	Small	2mm
MTPI-0004	Small	4mm
MTPI-1000	Medium	0mm
MTPI-1002	Medium	2mm
MTPI-1004	Medium	4mm
MTPI-2000	Large	0mm
MTPI-2002	Large	2mm
MTPI-2004	Large	4mm

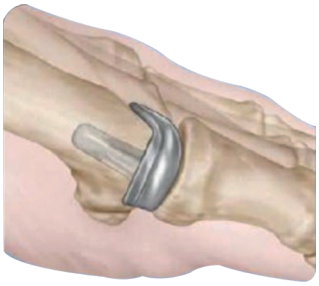


METATARSAL HEAD COMPONENT	
Referance	**Size**
MTPB-0000	Small
MTPB-1000	Medium
MTPB-2000	Large

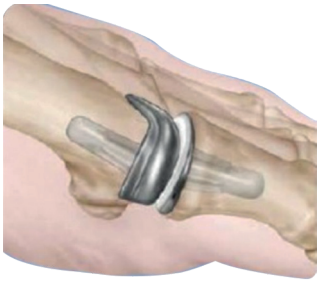
FALANGEAL COMPONENT	
Referance	**Size**
MTPK-0001	Small
MTPK-0002	Medium
MTPK-0003	Large

META- FAL STEM COMPONENT	
Referance	**Size**
MTPK-0000	Small
MTPK-1000	Medium
MTPK-2000	Large

Hemi Metatarsal



Total MTP Prosthesis



Features and Benefits

• Total and unilateral implants for both sides of the joint are provided within a single set.
• For a complete anatomical conformity, implants of different sizes can be used on either side of the joint.
• it is in the form of cannulated system to facilitate implantation.
• Conical dilation requires minimal bone resection while keeping the tissue inserts and sesamoid apparatus in place.
• The dorsal metatarsal cutter guide allows complete cheilectomy of dorsal osteophytes during implantation of the metatarsal component.

Total Arthroplasty

• Painful degenerative metatarso-phalangeal joint.
• Hallux rigidus 3-4. phase.
• Hallux valgus and Hallux Rigidus.
• Painful arthrofibrosis accompanied by hallux limitus.
• Revisions.

Hemi-Arthroplasty

• Hallux vulgus or hallux limitus.
• Hallux rigidus.
• Unstable or painful metatarsal/phalangeal joint.

Indications

• The PIEX® MTP System is designed for regeneration of the first metatarsal head and/or the proximal phalanx sole surface.

Contraindications

• Active local or systemic infections.
• Bone quality that prevents the implant from sticking in place.
• Vascular insufficiency, neuromuscular deterioration, and deterioration of musculature in the big toe.

Step 1: Incision And Exposure

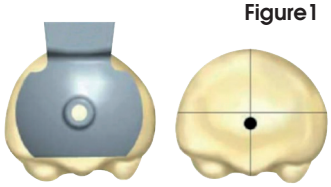
A sufficient length of incision of the skin is required to expose the arthritic first MTP joint. A longer incision may be beneficial for those performing the procedure for the first time. A dorsal skin incision running medial to the Extensor Hallucis Longus tendon and distally to the toe is recommended. The skin incision is deepened by sharp dissection with electrocautery using any bleeder.

The skin and subcutaneous tissues are visualized, and a lineal capsulotomy is performed in line with the first skin incision, while remaining medial to the tine extensor hallicus longus tendon.

Subperiosteal dissection usually begins at the base of the proximal phalanx and continues proximal and plantar within the joint limitation. The medial and lateral collateral ligaments are preserved by subperiosteal desection of the first metatarsal.

For implant placement, the entire first metatarsal phalangeal joint must bemobilized to achieve accessibility. Although a first metatarsal cheilectomy can be initiated during this process, it should be limited. Do not separate the flexor expansion aponeurotic connection from the base of the proximal phalanx

Figure1

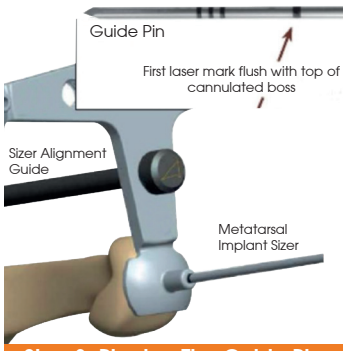


Step 2: Size Determination Of The Met At Arsal

With the Hallux plantar flexed, snop the Metatarsal Implant Sizer into place against the metatarsal head. Decide on the correct size to ensure adequate head coverage. When determining the appropriate size, ignore the surrounding osteophytes. (Figure1)

The plantar feature of the sizer should be placed 0-1 mm superior to the most dorsal feature of the seamodial grooves (Fig. 01). Keep in mind or note the size(S,M,L) on the handle of the selected size as it will be used during the process.

Figure02



Step 3: Placing The Guide Pin

Insert the adjustment guide through the space just above the selected size-coded mark by passing it through the sizer. Press the sizer against the metatarsal head with the adjustment guide parallel and above the metatarsal shaft.

This step will assist in placing the guide pin in the center of the channel.
The guide pin should be inserted 2 mm below the joint center. The guide is inserted up to the first line on the pin as shown in the figure. After confirming that the guide pin is parallel and centered on the metatarsal, remove the size marker from the guide pin (Fig. 02).

Figure03

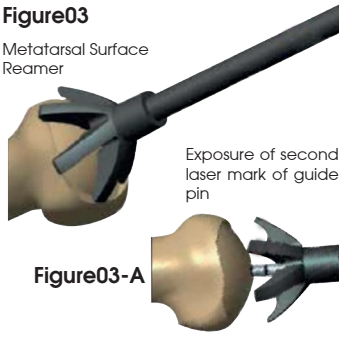


Figure03-A

Step 4: Metatarsal Reaming

Select the appropriate size -coded metatarsal reamer. Adequate retractions prevent the reamer from damaging the joint capsule or proximal phalanx. The reamer is then attached to a drill and placed on the kirschner. Rotate the reamer first and push it forward so that the metatarsal is on the head (Fig. 03).

Ream until the first laser mark is exposed. If desired, it can be enlarged up to the 2nd laser mark. (Figure 03-A) The distance between the laser marks is 2 mm.

in order for the laser mark to be seen more clearly, the residues must be cleaned and washed. it is recommended to wash the bone so as to avoid overheating it during the reaming process.

Figure04

Step 5: Central Drilling

When reaming process is complete and the laser line is at the desired stage, remove the reamer and insert the drill. Proceed until the drill's cutting edges are completely invisible in the bone. Then remove the guide pin and drill (Fig. 04).

Figure05

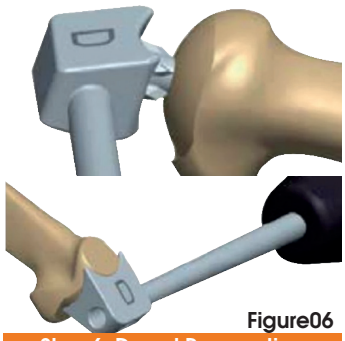


Figure06

Step 6: Dorsal Preparation

The Metatarsal Dorsal Cutting Guide is mounted so that the handle is medial, and the cutting surface marked D allows the entry of a dorsally oriented and slow-moving saw. Visually confirm that the bottom of the cutting guide is parallel to the ridge (Cristeae).

This way, the correct orientation of the implant will be ensured. Insert the cutting guide into the previously drilled cavity and push it until it is fully seated on the metatarsal head (Fig. 05).

Using a slow-moving saw, begin the osteotomy with the saw blade aligned with the cutting guide feature (Fig. 06). After the osteotomy is complete, remove the cutting guide. The surgeon can lightly tap on the cutting guide with a mallet.

Figure07

Step 7: Falangeal Sizing

The Proximal Phalanx Sizer is used to determine the appropriate size implant (Figure 07). Dimensions are size coded and should be noted for use during processing. Please note that the phalangeal size determination is not classified according to the size used on the Metatarsal head.

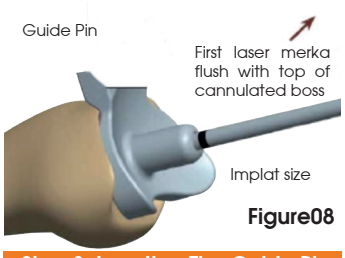


Figure08

Step 8: Inserting The Guide Pin

Once the appropriate size has been determined, attach the sizer guide to the phalangeal Implant Sizer at the location color-coded for the selected implant size. Insert the 2 mm guide pin into a drill and drive it into the phalanx so that the guide pin sizer passes through the center cavity. Drive it up to the 1st laser line on the guide pin. The sizer is then removed, and the guide pin is left in place. in cases where dorsal osteophytes interfere with insertion of the sizer, osteophyte removal is performed with a rongeur.

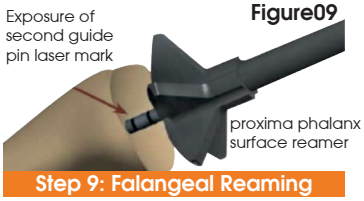


Figure09

Step 9: Falangeal Reaming

Select the appropriate proximal phalanx reamer. Sufficient retraction should be made to prevent the reamer from damaging the joint capsule or metatarsal head. Attach the reamer to a drill. Before it comes into contact with the bone, turn it and gently drive it forward so that the phalangeal is positioned against the articular surface. Ream until the 2. laser mark is exposed (Fig. 09). Washing is recommended to prevent overheating of the bone during reaming.

Figure10

Step 10: Central Drilling

Place the drill on the guide pin. Drive the drill forward until the cutting bits touch the base of the proximal phalanx (Fig.10) Remove the guide pin and use a rongeur to remove any surrounding debris or osteophytes. Wash the wound to remove ali residue.

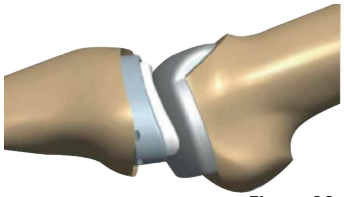


Figure11

Step 11: Implantation

ıntroduce the metatarsal implant with the phalanx positioned dorsally. Using the metatarsal striker, set the implant in place and tap it gently with a mallet (Fig. 11). Confirm position using fluoroscopy by reassessing range of motion. Place the phalangeal implant. Using the phalanx striker, gently tap it into place. With both implant components fully placed, assess range of motion, and confirm position using fluoroscopy.

Step 12: Closing

At the surgeon's preference, closure can be performed with special attention to the capsular repair and with the big toe in the correct and neutral position.

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