

ARTEMIS

MICROBEAM

Surgical Technique



Proper surgical procedures and techniques are the responsibility of the medical professional. The following guidelines are furnished for information purposes only. Each surgeon must evaluate the appropriateness of the procedures based on his or her personal medical training and experience.

For information on product availability in your area, please contact your local sales representative.



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MICROBEAM SURGICAL TECHNIQUE

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ARTEMIS Microbeam Surgical Technique

INTRODUCTION

Minimally Invasive, Maximum Reconstruction

The ARTEMIS Microbeam System provides comprehensive implant options for the minimally invasive, percutaneous fracture fixation, osteotomies, reconstruction procedures and arthrodesis in the foot and ankle; including Hammertoe Deformities. ARTEMIS Microbeam screws are provided in Ø2.0mm and Ø2.5mm fully threaded screws and are manufactured from titanium alloy (Ti-6Al-4V, per ASTM F136) . ARTEMIS Microbeams are offered in a comprehensive range of variable lengths to provide solutions for a wide range of percutaneous fixation.

Implant Options



2.0mm Microbeam		
	Length	
TH20-16T-09	16mm	
TH20-18T-09	18mm	
TH20-20T-09	20mm	
TH20-22T-09	22mm	
TH20-24T-09	24mm	
TH20-26T-09	26mm	
TH20-28T-09	28mm	
TH20-30T-09	30mm	
TH20-32T-09	32mm	
TH20-34T-09	34mm	
TH20-36T-09	36mm	
TH20-38T-09	38mm	
TH20-40T-09	40mm	
TH20-42T-09	42mm	
TH20-44T-09	44mm	
TH20-46T-09	46mm	
TH20-48T-09	48mm	
TH20-50T-09	50mm	

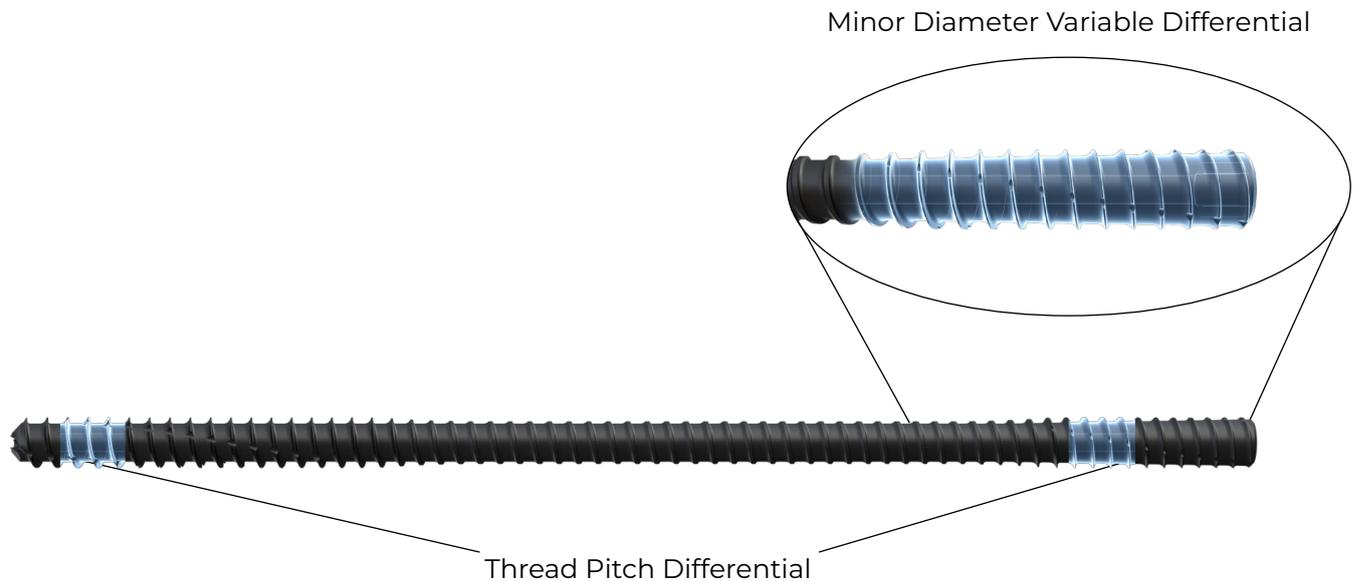


2.5mm Microbeam		
	Length	
TH25-16T-11	16mm	
TH25-18T-11	18mm	
TH25-20T-11	20mm	
TH25-22T-11	22mm	
TH25-24T-11	24mm	
TH25-26T-11	26mm	
TH25-28T-11	28mm	
TH25-30T-11	30mm	
TH25-32T-11	32mm	
TH25-34T-11	34mm	
TH25-36T-11	36mm	
TH25-38T-11	38mm	
TH25-40T-11	40mm	
TH25-42T-11	42mm	
TH25-44T-11	44mm	
TH25-46T-11	46mm	
TH25-48T-11	48mm	
TH25-50T-11	50mm	

ARTEMIS Microbeam Surgical Technique

BEAM FEATURES

Powerful Compression, Micro-Sized



2.0 MM



- Lengths: 16mm to 50mm by 2mm increments
- 10° Head Taper
- Variable Pitch Differential

2.5 MM



- Lengths: 16mm to 50mm by 2mm increments
- 10° Head Taper
- Variable Pitch Differential

ARTEMIS Microbeam Surgical Technique

INDICATIONS & CONTRAINDICATIONS

Indications

ARTEMIS Microbeam Screw System is indicated for fracture fixation, osteotomies, reconstruction procedures and arthrodesis in the foot and ankle.

Contraindications

Do not use Vilex implants in the presence of any contraindication. Contraindications include, but are not limited to:

- Conditions that restrict the patient's ability or willingness to follow postoperative instructions
- Presence of overt infection and/or localized inflammation
- Active infections in or near the fixation site
- Blood supply limitation
- Rapid joint disease, bone absorption, osteopenia, and/or osteoporosis
- Sepsis
- Suspected or documented metal allergy or intolerance
- Any patient having inadequate tissue coverage over the operative site
- Patients with certain metabolic diseases
- Any time implant utilization would interfere with anatomical structures or expedited physiological performance, such as impinging on vital structures
- Severely comminuted fractures such that segments may not be maintained in satisfactory proximate reduction
- Displaced, non-reduced fractures with bone loss
- All applications that are not defined by the indications are contraindicated

MRI Statement

The ARTEMIS Microbeam Screw System has not been evaluated for safety in the MR environment. It has not been tested for heating or unwanted movement in the MR environment. The safety of the ARTEMIS Microbeam Screw System in the MR environment is unknown. Performing an MR exam on a person who has this medical device may result in injury or device malfunction.

WARNING: DO NOT MIX DISSIMILAR IMPLANT MATERIALS

ARTEMIS Microbeam Surgical Technique

OPERATIVE GUIDE

General Overview

The Surgical Technique steps listed below are designed to provide a general overview on the instruments and procedure for implanting a ARTEMIS Microbeam for a Hammertoe Deformity Correction.

1. Incision & Joint Preparations

Make a transverse incision over the affected Proximal Interphalangeal (PIP) joint. **FIGURE 1**



FIGURE 1

Prepare the joint as usual for PIP arthrodesis. Ensure that there is sufficient joint resection for placement of the implant. **FIGURE 2**



FIGURE 2

2. K-Wire Insertion

Using a beaver blade or scalpel, make small stab incision through the skin of the distal phalanx to create a pilot hole for a K-Wire.

ARTEMIS Microbeam System offers 2.0mm and 2.5mm Microbeam options.

Wire	Beam Diameter
.9mm Wire	2.0mm Beam
1.1mm Wire	2.5mm Beam

Under fluoroscopy, insert the K-Wire that corresponds to the ARTEMIS Microbeam size desired through (K-150-09D or K-150-11D) the incision centrally, first traversing and stabilizing the Distal Interphalangeal DIP joint.

Traverse the K-Wire through the DIP joint, stabilizing and compressing the DIP joint. Advance the k-wire into the proximal phalanx. Optimal k-wire placement is central, midline. **FIGURE 3**



FIGURE 3

3. Length Measurement

Measurement for screws must be taken before drilling. Take the Depth Gauge (TH-DEPTH) and place the gauge over the guide wire, advancing it until the tip of the gauge rests firmly against the near bone surface. If necessary, make an additional stab incision around the K-Wire entry to allow for the depth gauge to seat to the bone. **FIGURE 4**

INSTRUMENTS USED

GUIDEWIRE .9 MM X 150MM
DOUBLE TROCAR

K-150-09D

GUIDEWIRE 1.1 MM X 150MM
DOUBLE TROCAR

K-150-11D



DEPTH GAUGE, TH20 & TH25
SCREWS

TH-DEPTH



FIGURE 4

NOTE: Use fluoroscopy, direct visual assessment, or tactile feel to ensure that the wire tip is in the correct location before final determination of length: read the depth of the depth gauge scale only when the end of the wire within the patient accurately represents the desired end of the screw.

4. Drilling

All Microbeams within the system are self-drilling and self-tapping. The bone may be pre-drilled in preparation for screw insertion; this may be useful in cases where hard cortical bone is present. Select the corresponding drill for the size of Microbeam desired.

Drill	Beam Diameter
1.7mm	2.0mm Beam
2.0mm	2.5mm Beam

Insert the Drill (TH-DRILL-20 or TH-DRILL-25) over the K-Wire and drill clockwise through the bone to the desired depth.

FIGURE 5



FIGURE 5

INSTRUMENTS USED



1.7MM DRILL, CANNULATED
TH-DRILL-20



2.0M DRILL, CANNULATED
TH-DRILL-25

5. Implantation

Power is not recommended for the screw insertion process. Insert the corresponding T7 or T8 Driver (TH-DT7 or TH-DT8) into the Driver Handle (H252) using the quick-connect mechanism.

Driver	Beam Diameter
T7	2.0mm Beams
T8	2.5mm Beams

Insert the Microbeam and driver assembly over the k-wire. Advance the beam into the bone by turning the driver clockwise, allowing the threads of the screw to self-tap into the bone. **FIGURE 6**

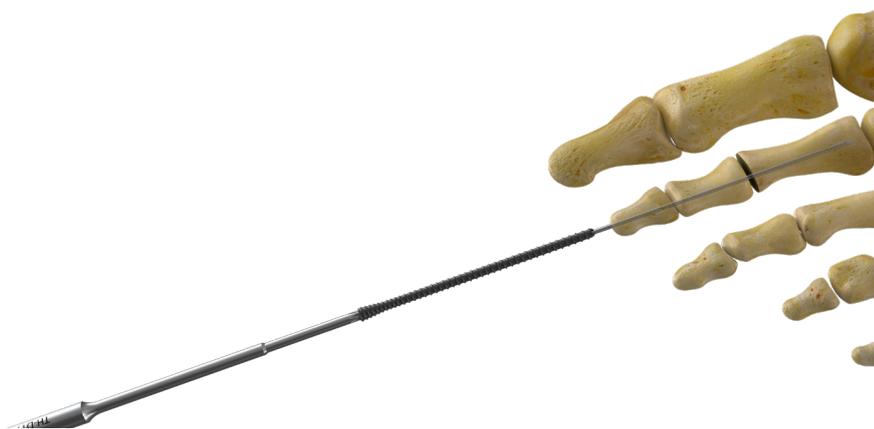


FIGURE 6

Advance the screw until desired compression is achieved.

Fluoroscopy is recommended to be used during the insertion process to ensure the screws are positioned correctly and the desired depth is achieved. **FIGURE 7**



FIGURE 7

INSTRUMENTS USED



T7 DRIVER, STRAIGHT
TH-DT7



T8 DRIVER, STRAIGHT
TH-DT8



RATCHET AO PULL HANDLE
H252

6. Wire Removal & Closure

After the screw is fully seated, grasp the wire and apply linear pressure away from the screw to remove the guide wire from the surgical incision and screw.

Once the wire has been removed, perform a final verification using fluoroscopy to ensure that the screw is fully seated, and the depth is as desired.

After the final screw has been placed, ensure all instrumentation is removed from the surgical incision. Irrigate the incision and perform a surgical closure of the soft tissue.

7. Implant Removal

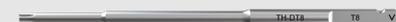
Insert the size-specific T7 or T8 Driver (TH-DT7 or TH-DT8) into the desired Driver Handle (H252) using the quick-connect mechanism.

Utilize the Implant Driver on the ratcheting Handle to back out the screw by engaging with the screw head and turning counterclockwise on the screw.

INSTRUMENTS USED



T7 DRIVER, STRAIGHT
TH-DT7



T8 DRIVER, STRAIGHT
TH-DT8



RATCHET AO PULL HANDLE
H252

ARTEMIS Microbeam Surgical Technique

Part Reference Guide

INSTRUMENTS

Part Number	Description
TH-DRILL-20	Drill, Cannulated, Ø1.70mm
TH-DRILL-25	Drill, Cannulated, Ø2.00mm
TH-DEPTH	Depth Gauge, TH20 & TH25 Screws
TH-DT7	Driver T7, Straight Handle
TH-DT8	Driver T8, Straight Handle
H252	AO Pull Handle, Ratchet
K-150-09D	Guidewire Ø.90mm x 150mm, Double Trocar
K-150-11D	Guidewire Ø1.1mm x 150mm, Double Trocar

2.0MM FULLY THREADED MICROBEAMS

Part Number	Description
TH20-16T-09	TITANEX MICROBEAM 2.0X16MM
TH20-18T-09	TITANEX MICROBEAM 2.0X18MM
TH20-20T-09	TITANEX MICROBEAM 2.0X20MM
TH20-22T-09	TITANEX MICROBEAM 2.0X22MM
TH20-24T-09	TITANEX MICROBEAM 2.0X24MM
TH20-26T-09	TITANEX MICROBEAM 2.0X26MM
TH20-28T-09	TITANEX MICROBEAM 2.0X28MM
TH20-30T-09	TITANEX MICROBEAM 2.0X30MM
TH20-32T-09	TITANEX MICROBEAM 2.0X32MM
TH20-34T-09	TITANEX MICROBEAM 2.0X34MM
TH20-36T-09	TITANEX MICROBEAM 2.0X36MM
TH20-38T-09	TITANEX MICROBEAM 2.0X38MM
TH20-40T-09	TITANEX MICROBEAM 2.0X40MM
TH20-42T-09	TITANEX MICROBEAM 2.0X42MM
TH20-44T-09	TITANEX MICROBEAM 2.0X44MM
TH20-46T-09	TITANEX MICROBEAM 2.0X46MM
TH20-48T-09	TITANEX MICROBEAM 2.0X48MM
TH20-50T-09	TITANEX MICROBEAM 2.0X50MM

2.5MM FULLY THREADED MICROBEAMS

Part Number	Description
TH25-16T-11	TITANEX MICROBEAM 2.5X16MM
TH25-18T-11	TITANEX MICROBEAM 2.5X18MM
TH25-20T-11	TITANEX MICROBEAM 2.5X20MM
TH25-22T-11	TITANEX MICROBEAM 2.5X22MM
TH25-24T-11	TITANEX MICROBEAM 2.5X24MM
TH25-26T-11	TITANEX MICROBEAM 2.5X26MM
TH25-28T-11	TITANEX MICROBEAM 2.5X28MM
TH25-30T-11	TITANEX MICROBEAM 2.5X30MM
TH25-32T-11	TITANEX MICROBEAM 2.5X32MM
TH25-34T-11	TITANEX MICROBEAM 2.5X34MM
TH25-36T-11	TITANEX MICROBEAM 2.5X36MM
TH25-38T-11	TITANEX MICROBEAM 2.5X38MM
TH25-40T-11	TITANEX MICROBEAM 2.5X40MM
TH25-42T-11	TITANEX MICROBEAM 2.5X42MM
TH25-44T-11	TITANEX MICROBEAM 2.5X44MM
TH25-46T-11	TITANEX MICROBEAM 2.5X46MM
TH25-48T-11	TITANEX MICROBEAM 2.5X48MM
TH25-50T-11	TITANEX MICROBEAM 2.5X50MM



Learn more about the
ARTEMIS Microbeam System

This document is intended solely for the use of healthcare professionals.

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