



# Treace Medical Concepts Screw Fixation System

## Surgical Technique

# Indications

The TMC Screw Fixation System is intended for primary and revision fracture fixation and repair, joint fusions (arthrodesis), bone reconstructions, osteotomies, pseudoarthroses (non-unions), and ligament fixation. The System is indicated for use in adult and pediatric patients > 12 years of age at the following anatomical sites:

- Upper extremity: glenoid, humerus, ulna, radius, and hand
- Lower extremity: tibia, fibula, patella, ankle, and foot. Indicated procedures include:
  - o Fusions (e.g., talocalcaneal, talonavicular, naviculocuneiform, calcanealcuboid, tarsometatarsal, metatarsophalangeal, and interphalangeal)
  - o Mono or bi-cortical osteotomies of the tarsals, metatarsals, and phalanges (e.g., Scarf, Chevron, Akin, Weil, and Transverse osteotomies for hallux valgus, tailor's bunion, metatarsus adductus, flatfoot, and hammertoe deformities).

# Surgical Technique

The TMC Screw Fixation System is composed of cannulated screws, available in a variety of diameters, lengths, in headed and headless versions, with and without bevels, and with and without compression features. These screw options fit a variety of applications throughout the body as indicated in the corresponding Instructions for Use, and the correct screw selection for the procedure is extremely important. The preoperative consideration of the proper screw size and design will increase the potential for surgical success.

For illustrative purposes, the following surgical technique describes use of a 3.0mm and/or 3.5mm headed screws.

Note: Though the TMC fixation screws are designed as permanent implants, they may be removed intra or post-operatively as deemed necessary by the physician using the appropriate size screwdriver.

**Caution:** Proper handling and care should be taken when handling sharp devices.

## *Surgical Approach*

1. Perform an appropriate skin incision over the desired joint or osteotomy site. Release the ligaments as applicable. For fusions, prepare the joint surfaces by removing the cartilage and subchondral bone bleeding subchondral bone is visualized. For osteotomies, use an appropriate cutting device to perform a complete osteotomy through the target bone.

## *Correction*

2. Using manual instruments and/or manual manipulation, make desired transverse, sagittal, and frontal plane adjustments to position the bone fragments in corrected alignment.

## *K-wire Placement*

3. Using power, insert the 1.1mm (or appropriate size) k-wire in the desired trajectory across the fusion

or osteotomy site from the appropriate direction, until the desired depth is reached. Confirm the k-wire positioning using fluoroscopy.

**Caution:** Care must be taken to ensure the k-wire is placed a sufficient distance from the joint to avoid fracturing the bone.

### *Countersinking*

Note: Countersinking is an optional step and can be performed before or after drilling. Utilize the appropriately sized countersink.

4. To ensure complete seating of the headed screws, the 5.0mm (or appropriate size) countersink may be used. Slide the countersink over the k-wire and advance the countersink in a clockwise motion to penetrate the cortex of the bone.

**Caution:** Removing too much bone with the countersink can cause loss of screw head purchase and diminish the compression effect of the screw.

### *Drilling*

Note: The TMC Screw Fixation System has been designed to be self-drilling and self-tapping. However, in some situations such as hard cortical bone, or when an oblique approach is desired, drilling may be necessary.

5. Select the 2.0mm (or appropriate size) cannulated drill and slide the drill over the k-wire. Under power, advance the drill until the desired screw depth is achieved.

### *Screw Length Determination*

6. Determine the desired screw length by referencing the depth markings on the drill and/or the k-wire. If using the fully threaded screw, the depth gauge countersink instrument may be used to determine the desired screw length.

### *Screw Insertion*

7. Advance the 3.0mm screw (or appropriate size) over the k-wire using a cannulated #15 (or appropriate size) screwdriver until the head of the screw is completely seated in the bone. Verify final position via fluoroscopy. Remove the k-wire.
8. A number of screws may be placed across the joint or osteotomy as deemed necessary by the surgeon. Implant the additional screws following same steps as described for the first screw.

**Caution:** Care must be taken to ensure the additional screw(s) is placed a sufficient distance from the previous screw(s) to avoid creating a stress riser.



100 Palmetto Park Place, Ponte Vedra, FL 32081 USA 904.373.5940

[www.treace.com](http://www.treace.com) Pat. [www.treace.com/patents](http://www.treace.com/patents)

LBL 1405-9095 Rev. E 03/26