

**Operative (Surgical) Technique**  
**NBX Multiplanar Phalangeal & Metacarpal External Fixator**  
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NBX Hand “Long” (metacarpal) Fixator



## I. Operative Technique – Metacarpal Shaft with Proximal Extension



- The procedure is performed in a sterile setting under appropriate anaesthesia. Early fixation (< 5 days) is encouraged as fracture fragments are more easily mobilized.
- Fluoroscopic (standard or mini) guidance is used throughout the procedure.
- The hand is prepped and draped in the standard fashion. The NBX Fixator comes sterile and peel packed; it is then opened for use.
- Gentle longitudinal traction is placed on the affected finger for initial metacarpal (MC) reduction.
- Further reduction of the fracture is achieved by manual manipulation and/or by pointed reduction clamps percutaneously.
  - A K-wire is placed centrally, bicortically and 90° to the dorsal cortex in the base of the MC.
- The Fixator is placed over the K-wire through the central, non locking hole in mid arc (C).
- The Fixator is aligned with long axis of the bone, approximately 1cm above the skin.
- Check that all ball/nuts are loosened.

- The first side rail K-wire is placed through the distal (R6) ball/nut and into the MC shaft distally and avoiding the extensor tendon.
- The second side rail K-wire is placed through the opposite (L6) ball/nut in the shaft distally and avoiding the extensor tendon.
- Fracture alignment is adjusted and lock nuts on R6 and L6 are snugged by hand.
- Third and fourth R1 and L1 are placed in the proximal bone fragment and snugged by hand.
- First and second arc K-wires (RA and LA) is placed.
- Fracture alignment is again adjusted and lock nuts on RA and LA are snugged by hand.
- Additional side rail K-wires (R2-to-5 and L2-to-5) are added; as many as fracture requires, avoiding extensor tendon.
- Fracture alignment adjusted and lock nuts secured with the wrench provided.
- The central mid arc (C) K-wire is removed.
- Passive finger motion is performed to assure tendon gliding.

## II. Operative Technique – Metacarpal Shaft +/- Distal Extension / Neck (Boxer)



- The procedure is performed in a sterile setting under appropriate anaesthesia. Early fixation (< 5 days) is encouraged as fracture fragments are more easily mobilized.
- Fluoroscopic (standard or mini) guidance is used throughout the procedure.
- The hand is prepped and draped in the standard fashion. The NBX Fixator comes sterile and peel packed; it is then opened for use.
- Gentle longitudinal traction and three point bending force is placed on the affected finger for initial metacarpal (MC) reduction.
- Further reduction of the fracture is achieved by manual manipulation and/or by pointed reduction clamps percutaneously.
  - A K-wire is placed centrally, bicortically and 90° to the dorsal cortex in the head of the MC.
- The fixator is placed over the K-wire through the central, non locking hole in mid arc (C).
- The fixator is aligned with long axis of the bone, approximately 1cm above the skin.
- Check that all ball/nuts are loosened.
- The first side rail K-wire is placed through the distal (R6) ball/nut and into the MC shaft distally and avoiding the extensor tendon.
- The second side rail K-wire is placed through the opposite (L6) ball/nut in the shaft distally and avoiding the extensor tendon.
- Fracture alignment is adjusted and lock nuts on R6 and L6 are snugged by hand.

- Third and fourth R1 and L1 are placed in the proximal bone fragment and snugged by hand.
- First and second arc K-wires (RA and LA) is placed.
- Fracture alignment is again adjusted and lock nuts on RA and LA are snugged by hand.
- Additional side rail K-wires (R2-to-5 and L2-to-5) are added; as many as fracture requires, avoiding extensor tendon.
- Fracture alignment adjusted and lock nuts secured with the wrench provided.
- The central mid arc (C) K-wire is removed.
- Passive finger motion is performed to assure tendon, sagittal band and extensor hood gliding.