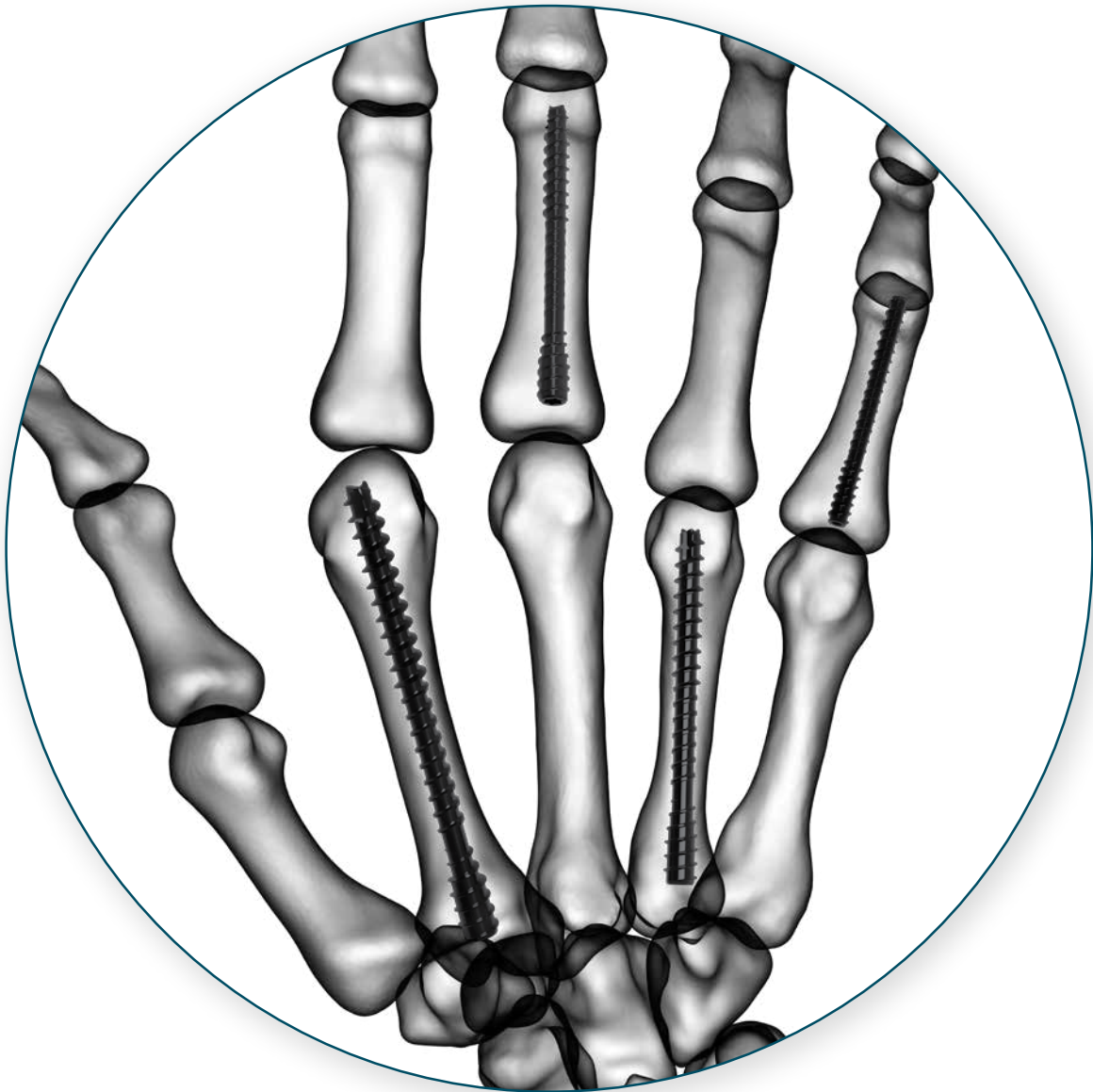


SURGICAL TECHNIQUE GUIDE

HAND TRAUMA THREADED NAIL



 **skeletal dynamics**[®]
UNDERSTANDING THE UPPER EXTREMITY

As described by:
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HAND TRAUMA THREADED NAIL

Description

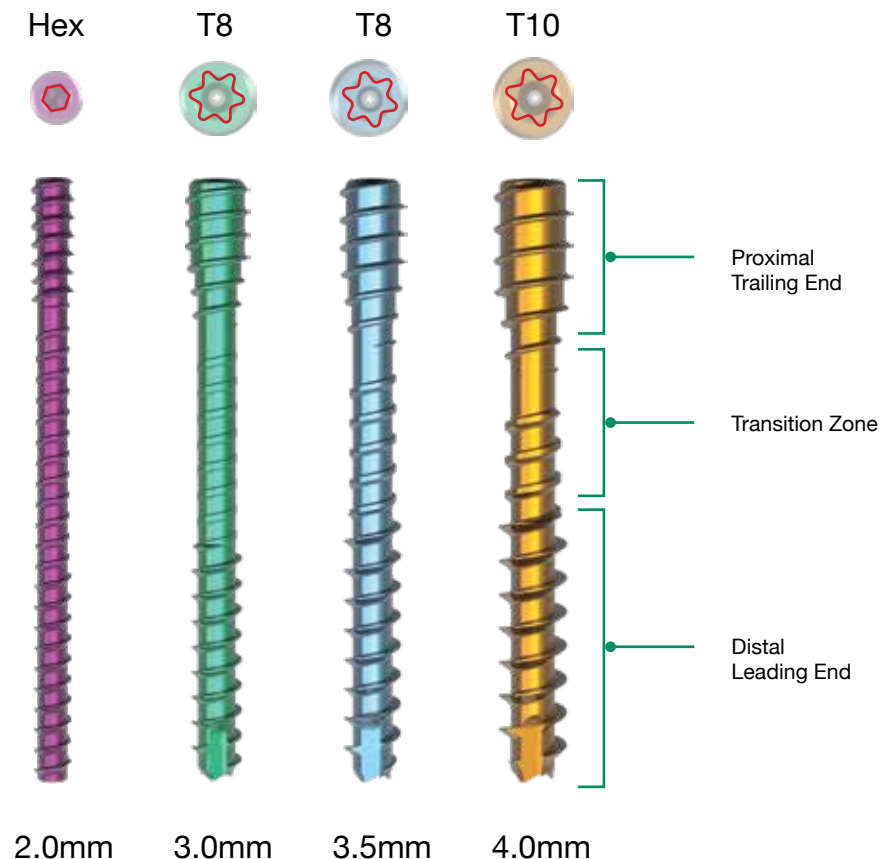
The Skeletal Dynamics Hand Trauma Threaded Nail System consists of titanium nails and specialized instrumentation.

- 2.0mm non-cannulated threaded nails: 24mm - 48mm in 4mm increments.
- 3.0mm cannulated threaded nails: 25mm - 70mm in 5mm increments.
- 3.5mm cannulated threaded nails: 25mm - 70mm in 5mm increments.
- 4.0 mm cannulated threaded nails: 25mm - 70mm in 5mm increments.

The system is provided non-sterile and is sterilized in the user facility.

Indications for Use

The Skeletal Dynamics Hand Trauma Threaded Nail System is intended for fixation of osseous fragments or fractures, arthrodesis of small joints, and osteotomies, with the appropriately sized nail.



1 LOCATING THE INSERTION POINT



Fully flex the metacarpophalangeal joint.

Place the sharp tip of the Guide Wire Introducer onto the dorsal third of the metacarpal head. Alternatively, make a 10mm incision to visualize and manage the tendon before inserting the 1.4mm k-wire.

2 K-WIRE INSERTION AND FRACTURE REDUCTION

Manage the extensor tendons. Under fluoroscopy, insert the k-wire and advance it into the metacarpal head in line with the medullary canal of the distal metacarpal fragment. Reduce the fracture and advance the k-wire into the proximal metacarpal fragment. Measure the nail length with one of the following methods:

Depth Gauge:

Using fluoroscopy, position the distal end of the k-wire at the base of the bone. Pass the depth gauge over the k-wire up to the articular surface of the bone. If using a 2.0 Hand Trauma Threaded Nail, use the 2.0 Hand Trauma Threaded Nail Depth Gauge. Otherwise, use the Hand Trauma Threaded Nail Depth Gauge. Using the laser etched band on the k-wire, read and note the nail length from the depth gauge measurement window. Since it is recommended for the ends of the hand nail to be 5mm from each articular surface, subtract 10mm from the length reading to choose the appropriate size hand nail.

Measurement Ruler:

Align the “0 mark” of the measurement ruler with the base of the bone and note the length mark near the head. Since it is recommended for the ends of the hand nail to be 5mm from each articular surface, subtract 10mm from the length reading to choose the appropriate size hand nail.

Fully flex the wrist. Continue to advance the k-wire proximally through the dorsal aspect of the metacarpal base and carpal bones. Advance the k-wire through the soft tissues until exiting through the dorsal skin at the wrist.



MSRT-RL: Measurement Ruler



DGA-RHS-2.0: Depth Gauge, 2.0 Hand Trauma Threaded Nail



DGA-RHS: Depth Gauge, Hand Trauma Threaded Nail

STARTING THE REAMING PROCESS

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Hand Trauma Threaded Nail can be introduced either in a retrograde or antegrade direction. Antegrade metacarpal nail insertion is less traumatic for the CMC joint but requires careful management of extensor tendons at the wrist. Metacarpal nail insertion may be simpler in a distal to proximal direction but requires creating a larger defect in the metacarpal head and extensor tendon at the MP joint.



Choose the direction of hand nail insertion. To ensure ease of reaming and nail introduction, use a No. 11 surgical blade to create a small incision around the k-wire.

Insert the cannulated countersink over the k-wire, then advance cautiously through the soft tissues to the bone surface with an oscillatory hand motion. Countersink only the cortical base of the bone before commencing the reaming process. Use the wire pusher to keep the k-wire in place, if necessary.

Caution:

Do not use the countersink under power; use the provided manual handle. Do not countersink to ream the entire medullary canal.

REAMING/CANAL PREPARATION

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Slide the 2.4mm reamer over the proximal end of the k-wire, advance gently through the soft tissues with an oscillating motion to the bone surface. Ream the medullary canal manually, stopping at least 5 mm from to the distal articular surface of the bone. Continue manual reaming with the 2.7mm and 3.3mm reamer until cortical engagement is achieved.



Note:

If necessary, use Wire Pusher to keep k-wire in place when removing the reamer. Do not remove k-wire.

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EXCHANGING K-WIRES



Place the Guide Wire Exchanger over the proximal end of the 1.4mm k-wire and advance cautiously through the soft tissues and past the fracture site up to the distal reamed portion of the canal.

Leave the Guide Wire Exchanger in place, then remove the 1.4mm k-wire.

Insert the 0.9mm k-wire into the Guide Wire Exchanger up to the distal end of the medullary canal. Remove the Guide Wire Exchanger.

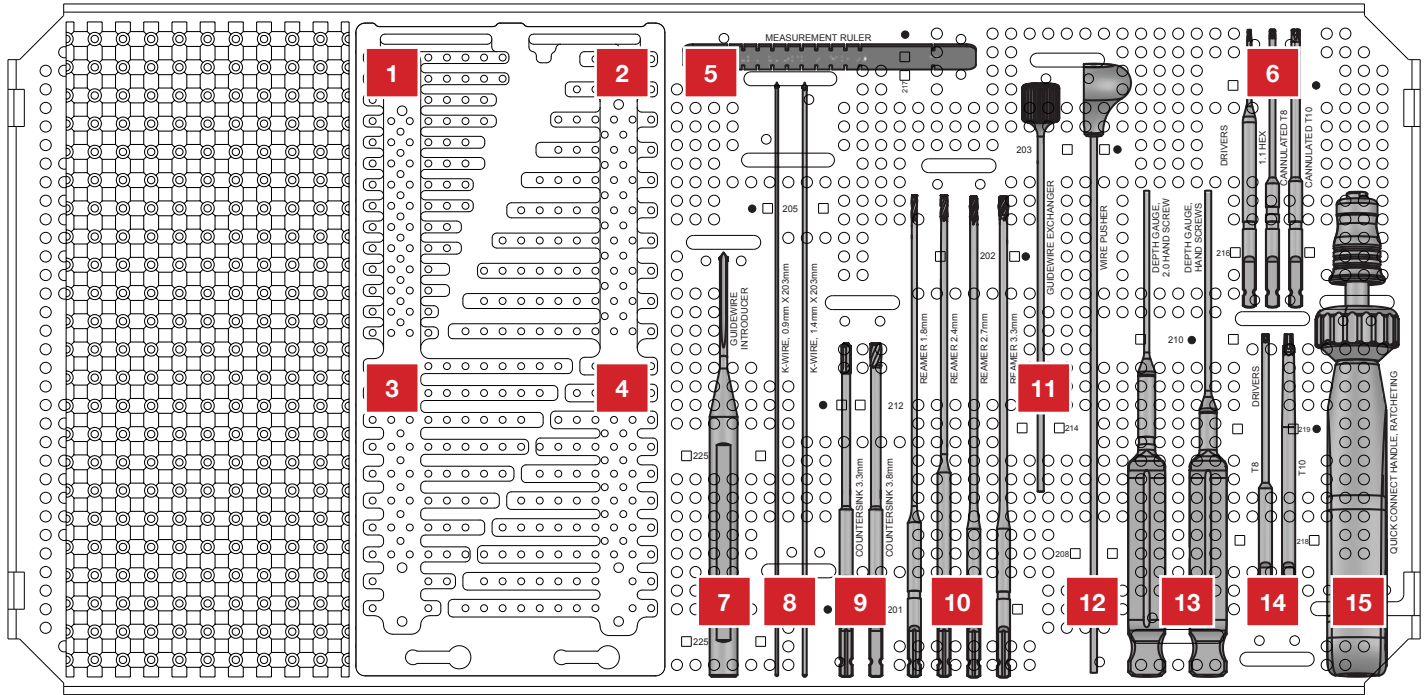
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THREADED HAND NAIL INSERTION



Insert the selected sized nail over the k-wire and advance cautiously through the soft tissues to the bone surface. Thread into the bone. Verify proper reduction and nail placement with radiographic imaging. Remove the k-wire. For proximal phalanx, confirm correct finger rotational alignment.

INSTRUMENT TRAY (Standard Configuration)



Loc#	Catalog#	Description	Loc#	Catalog#	Description			
1	RHS-20024	Hand Trauma Threaded Nail, 2.0mm x 24mm, Ti	5	MSRT-RL	Measurement Ruler			
	RHS-20028	Hand Trauma Threaded Nail, 2.0mm x 28mm, Ti		6	DRVR-HCS-0110	REDUCT Driver, 2.0		
	RHS-20032	Hand Trauma Threaded Nail, 2.0 mm x 32mm, Ti			DRVR-CAN-T8	T8 Driver, AO, Cannulated		
	RHS-20036	Hand Trauma Threaded Nail, 2.0mm x 36mm, Ti			DRVR-CAN-T10	T10 Driver, AO, Cannulated		
	RHS-20040	Hand Trauma Threaded Nail, 2.0mm x 40mm, Ti			7	GDW-INT	Guidewire Introducer	
	RHS-20044	Hand Trauma Threaded Nail, 2.0mm x 44mm, Ti				8	KWIR-ST-09203	K-Wire, 0.9mm x 203mm, Single Trocar
	RHS-20048	Hand Trauma Threaded Nail, 2.0mm x 48mm, Ti					KWIR-ST-14203	K-Wire, 1.4mm x 203 mm, Single Trocar
	2	RHS-30025					Hand Trauma Threaded Nail, 3.0mm x 25mm, Ti	9
RHS-30030		Hand Trauma Threaded Nail, 3.0mm x 30mm, Ti	RHS-CSK-38				Countersink, 3.8mm, Cannulated	
RHS-30035		Hand Trauma Threaded Nail, 3.0mm x 35mm, Ti	10	RHS-RMR-18			Reamer, 1.8mm, Cannulated	
RHS-30040		Hand Trauma Threaded Nail, 3.0mm x 40mm, Ti		RHS-RMR-24			Reamer, 2.4mm, Cannulated	
RHS-30045		Hand Trauma Threaded Nail, 3.0mm x 45mm, Ti		RHS-RMR-27			Reamer, 2.7mm, Cannulated	
RHS-30050		Hand Trauma Threaded Nail, 3.0mm x 50mm, Ti		RHS-RMR-33	Reamer, 3.3mm, Cannulated			
RHS-30055		Hand Trauma Threaded Nail, 3.0mm x 55mm, Ti	11	GDW-EXCH	Guidewire Exchanger			
RHS-30060		Hand Trauma Threaded Nail, 3.0mm x 60mm, Ti		12	HCS-WP	HCS Wire Pusher		
RHS-30065		Hand Trauma Threaded Nail, 3.0mm x 65mm, Ti			13	DGA-RHS-20	Depth Gauge, 2.0 Hand Trauma Threaded Nail	
RHS-30070		Hand Trauma Threaded Nail, 3.0mm x 70mm, Ti				DGA-RHS	Depth Gauge, Hand Trauma Threaded Nail	
3	RHS-35025	Hand Trauma Threaded Nail, 3.5mm x 25mm, Ti				14	DRVR-UQC-T8	Driver, Universal QC, T8
	RHS-35030	Hand Trauma Threaded Nail, 3.5mm x 30mm, Ti					DRVR-UQC-T10	Driver, Universal Quick Connect, T10
	RHS-35035	Hand Trauma Threaded Nail, 3.5mm x 35mm, Ti	15				HNDL-UQC-RTC	Handle, Universal QC, Ratcheting
	RHS-35040	Hand Trauma Threaded Nail, 3.5mm x 40mm, Ti		4			RHS-40025	Hand Trauma Threaded Nail, 4.0mm x 25mm, Ti
	RHS-35045	Hand Trauma Threaded Nail, 3.5mm x 45mm, Ti			RHS-40030		Hand Trauma Threaded Nail, 4.0mm x 30mm, Ti	
RHS-35050	Hand Trauma Threaded Nail, 3.5mm x 50mm, Ti	RHS-40035			Hand Trauma Threaded Nail, 4.0mm x 35mm, Ti			
RHS-35055	Hand Trauma Threaded Nail, 3.5mm x 55mm, Ti	RHS-40040			Hand Trauma Threaded Nail, 4.0mm x 40mm, Ti			
RHS-35060	Hand Trauma Threaded Nail, 3.5mm x 60mm, Ti	RHS-40045	Hand Trauma Threaded Nail, 4.0mm x 45mm, Ti					
RHS-35065	Hand Trauma Threaded Nail, 3.5mm x 65mm, Ti	RHS-40050	Hand Trauma Threaded Nail, 4.0mm x 50mm, Ti					
RHS-35070	Hand Trauma Threaded Nail, 3.5mm x 70mm, Ti							



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