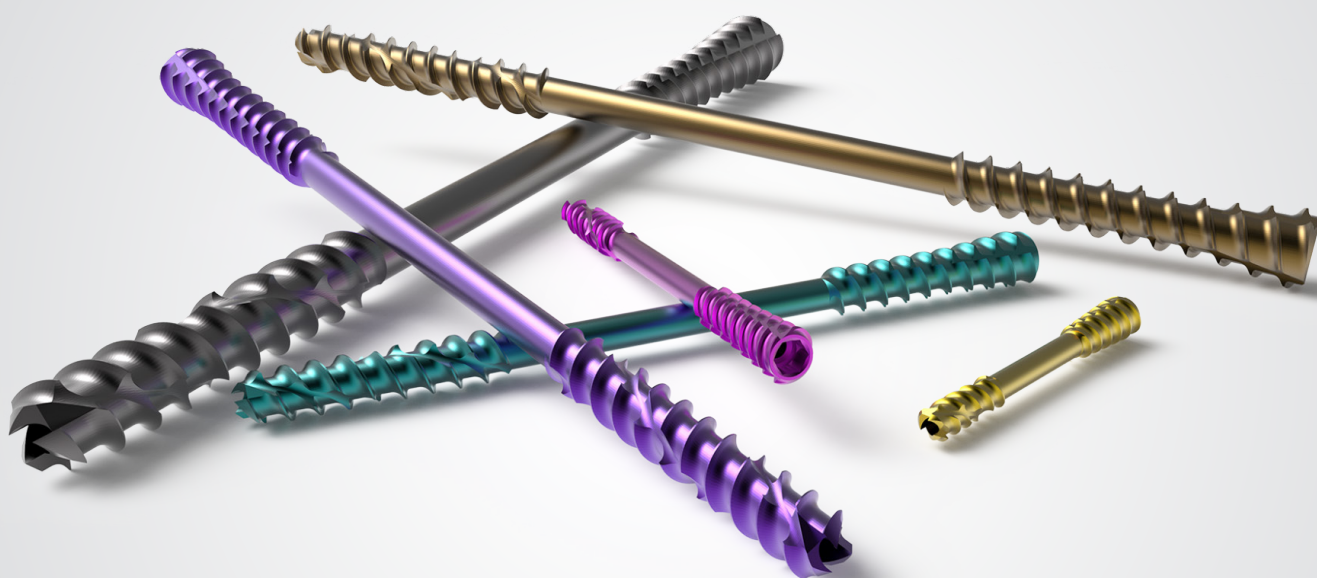# THE **NX NAIL**

SURGICAL TECHNIQUE FOR METACARPAL FRACTURES

FIELDORTHOPAEDICS

INDICATIONS FOR USE

The NX Nail System, part of the Field Orthopaedics Bony Trauma Extremity System, comprises a range of threaded intramedullary nails and instruments for use in fixation of fractures, osteotomies, and arthrodesis, in bones of the appropriate size of the device, in adults, children (2-12 years), and adolescents (12-21 years), in which growth plates have fused or in which growth plates will not be crossed by screw fixation.

CONTENTS

CLINICAL USES

ENGINEERED FOR TRAUMA FIXATION IN THE PHALANX, METACARPAL, SCAPHOID AND ULNA.

- Diaphyseal trauma, osteotomies, and non-unions.

- For extra articular fractures or osteotomies where the surgeon wants to minimise soft tissue disruption and maintain length.

- For non-union revisions where surgeons want to avoid compression and augment with bone graft.

- More size options increase the opportunities for use.

COLOUR	SIZE	LENGTH	IMAGE
GOLD	2.0mm	12 - 40mm	
MAGENTA	2.5mm	12 - 60mm	
TEAL	3.0mm	25 - 70mm	
PURPLE	3.5mm	25 - 70mm	
BRONZE	4.0mm	35 - 80mm	
GREY	5.0mm	35 - 90mm	
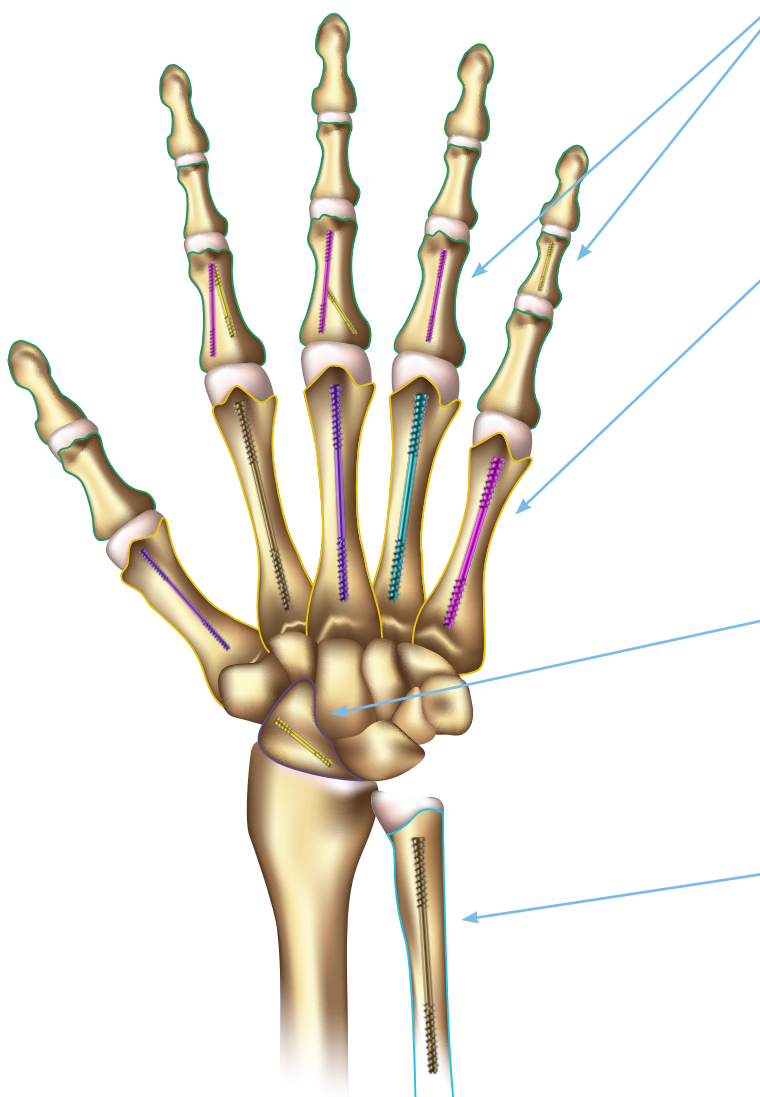
PHALANX

INDICATION	P1 & P2
SIZE RECOMMENDATION	2.0 - 2.5mm
LENGTH RANGE	2.0: 12 – 40mm
	2.5: 12 – 60mm

METACARPAL

INDICATION	Thumb, 2nd, 3rd, 4th, 5th
SIZE RECOMMENDATION	2.5 - 4.0mm
LENGTH RANGE	2.5: 12 – 60mm
	3.0: 25 – 70mm
	3.5: 25 – 70mm
	4.0: 35 – 80mm

SCAPHOID

INDICATION	Scaphoid
SIZE RECOMMENDATION	2.0 - 2.5mm
LENGTH RANGE	2.0: 12 – 40mm
	2.5: 12 – 60mm

ULNA

INDICATION	Ulna
SIZE RECOMMENDATION	3.5 - 5.0mm
LENGTH RANGE	3.5: 25 – 70mm
	4.0: 35 – 80mm
	5.0: 35 – 90mm

PROCEDURAL TECHNIQUE FOR METACARPAL FRACTURES

1 & 2. IDENTIFY APPROACH

With the finger in flexion, make a mini open incision over the metacarpophalyngeal joint.

Identify the dorsal third of the metacarpal head for insertion of the K-wire.
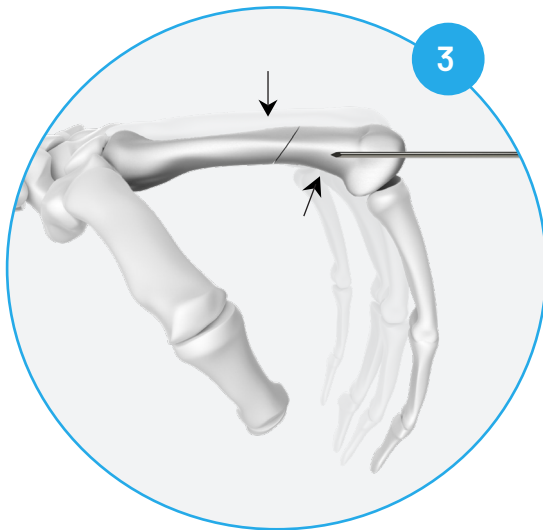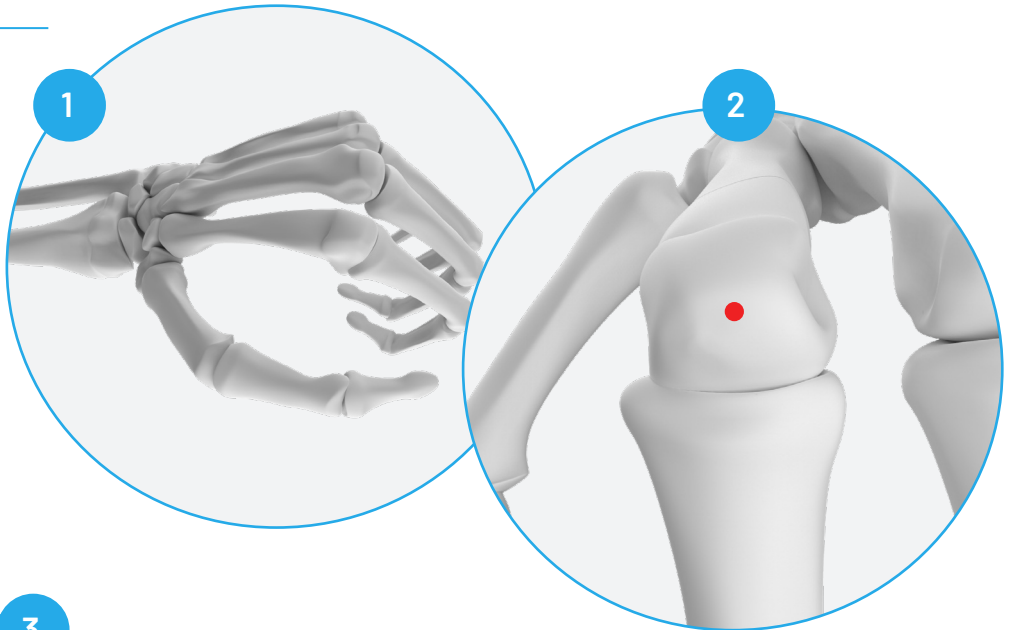
3. REDUCE THE FRACTURE

Using distraction and indirect pressure, anatomically reduce the shaft of the metacarpal under intraoperative imaging.

4. ACHIEVE TEMPORARY FIXATION

Cross the fracture site with the K-wire until the tip of the K-wire is at the far cortex.

5. MEASURE AND SELECT NAIL

Use the FO depth gauge to determine the diameter and length of the implant required.

To confirm the diameter of the implant, align the depth gauge with the isthmus of the metacarpal under fluoroscopy, aligning the edge of the depth gauge with the borders of the isthmus.
The nail corresponding to the depth gauge with line to line fit should be selected

◄ BONE DIAMETER CAN BE MEASURED HERE ►

5

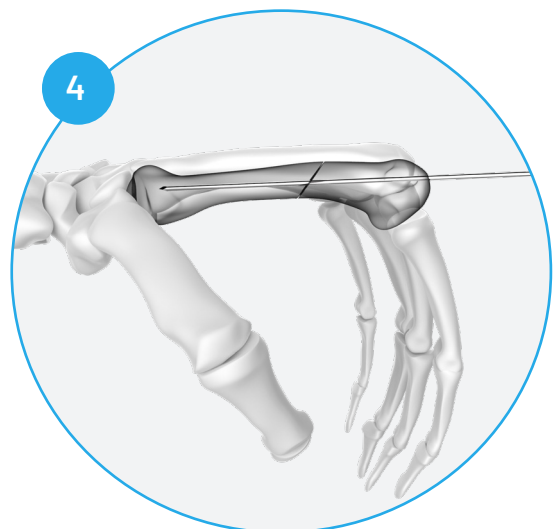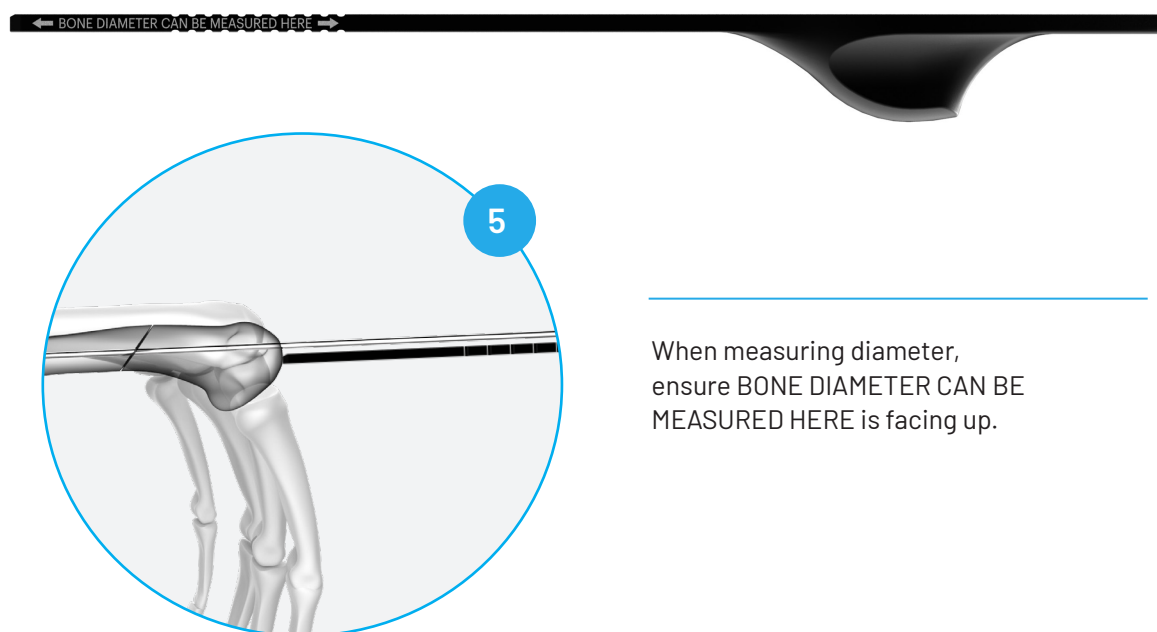When measuring diameter,
ensure BONE DIAMETER CAN BE
MEASURED HERE is facing up.

To determine the length of the metacarpal, hold the depth gauge against the head of the metacarpal, with the protruding K-wire seated in the groove along the shaft of the depth gauge. Measure the exposed length of the K-wire against the markings along the shaft of the NX depth gauge.

This measurement indicates the length to which the K-wire has been inserted into the metacarpal. As such, it may be appropriate to subtract up to 5mm from the depth gauge reading, to ensure correct placement of the implant.

If fracture pattern permits and the fragments are adequately reduced, measurement of the length of the required nail may be taken under fluorscopy. Notches along the length of the depth gauge allow for direct measurement under fluoroscopy and match the lengths of the nails provided in the set.

90 85 80 75 70 65 60 55 50 45 40   3.5 NX DEPTH GAUGE
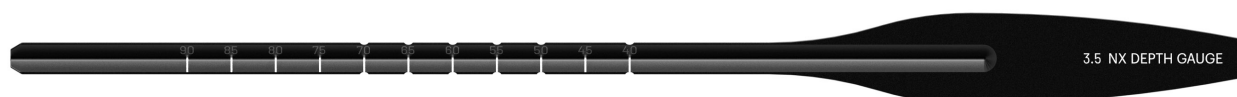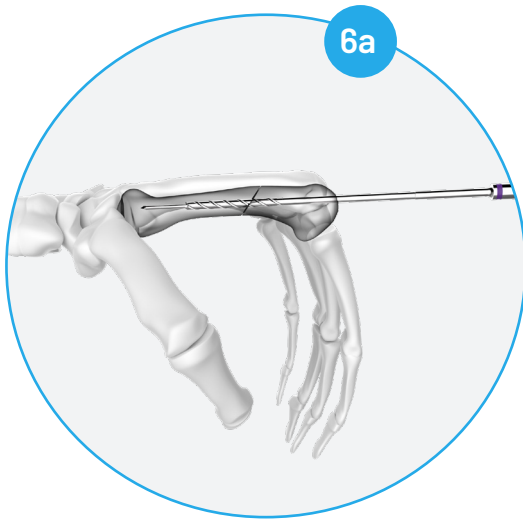
6a. PREPARE THE METACARPAL

Once reduced, drill your insertion tunnel with the corresponding drill. Pass the cannulated drill bit over the K-wire to the desired depth.

Remove the drill while taking care to maintain the position of the K-wire. Do not remove the K-wire.

6b. PROXIMAL OVERDRILLING

Metaphyseal Hand Drills are provided for all nails to reduce hoop stress generated by the implant head.

Standard Metaphyseal Drill

- Designed to dimensionally match the internal diameter of the nail head.
- Use will decrease hoop stress without altering pull out performance.
- Identified by epoxy colour band which matches anodisation of the nail and corresponding drill.

Extended Metaphyseal Drill

- Designed to include an extended drill taper.
- Full insertion will decrease bone engagement by up to 20% and should only be used with brittle bone.
- Identified by the red epoxy band and laser marked portion on the cutting surface.

Using the Metaphyseal Hand Drill

- Over drill the distal metacarpal to prepare the bone for the implant head.
- Insert the drill over the K-wire to the depth of the tapered head.
- Remove the drill taking care to maintain K-wire position.
- Do not remove the K-wire.
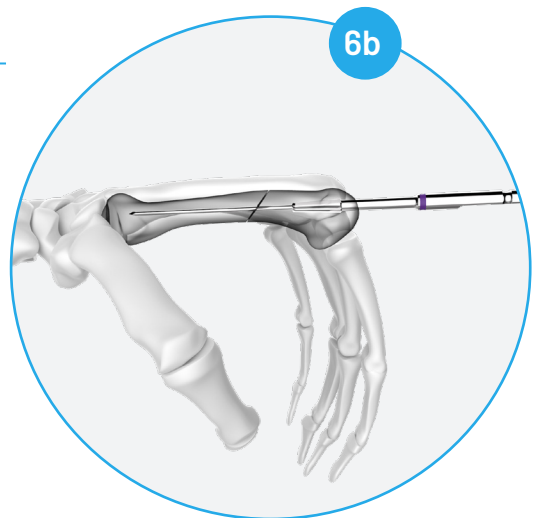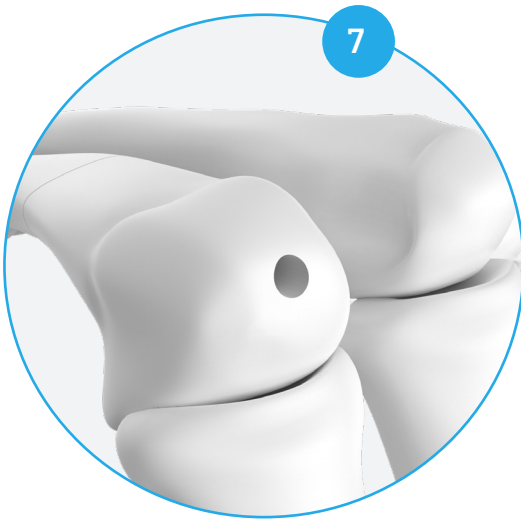
7. NAIL INSERTION

Insert the implant over the K-wire. During insertion, pay attention to the bone while seating the head of the nail.

*Choose a SMALLER DIAMETER NAIL if you experience high resistance or are concerned with hoop stresses propagating a fracture. This nail may also need to be slightly longer than that previously selected.

8. CLOSE

Remove the K-wire and close in your preferred method.

NX NAIL CATALOGUE

2.0MM NAIL SYSTEM

CAT NO.	DESCRIPTION	QTY
INSTRUMENTS		
KWDT-08100/5	0.8mm x 100mm K-wire	5
NXDG-20/1	2.0mm NX Depth Gauge	1
NXMD-20/1	2.0 Metaphyseal Cannulated Hand Drill	1
NXED-20/1	2.0 Extended Metaphyseal Cannulated Hand Drill	1
NXDL(c)-150/1	1.5mm Cannulated Drill Bit	2
NXHX(c)-15/1	1.5mm Cannulated Hex Driver	2
MSHD/1	Small Surgical Handle	1
NXLD/1	NX Nail System Tray Lid	1
NXTY-20/1	2.0mm NX Nail System Tray	1
IMPLANTS		
NXNC-2012/1	2.0mm x 12mm NX Nail	1
NXNC-2014/1	2.0mm x 14mm NX Nail	1
NXNC-2016/1	2.0mm x 16mm NX Nail	1
NXNC-2018/1	2.0mm x 18mm NX Nail	1
NXNC-2020/1	2.0mm x 20mm NX Nail	4
NXNC-2022/1	2.0mm x 22mm NX Nail	4
NXNC-2024/1	2.0mm x 24mm NX Nail	4
NXNC-2026/1	2.0mm x 26mm NX Nail	4
NXNC-2028/1	2.0mm x 28mm NX Nail	4
NXNC-2030/1	2.0mm x 30mm NX Nail	4
NXNC-2032/1	2.0mm x 32mm NX Nail	4
NXNC-2034/1	2.0mm x 34mm NX Nail	4
NXNC-2036/1	2.0mm x 36mm NX Nail	4
NXNC-2038/1	2.0mm x 38mm NX Nail	4
NXNC-2040/1	2.0mm x 40mm NX Nail	4

2.5MM NAIL SYSTEM

CAT NO.	DESCRIPTION	QTY
INSTRUMENTS		
KWDT-10100/5	1.0mm x 100mm K-wire	5
NXDG-25/1	2.5mm NX Depth Gauge	1
NXMD-25/1	2.5 Metaphyseal Cannulated Hand Drill	1
NXED-25/1	2.5 Extended Metaphyseal Cannulated Hand Drill	1
NXDL(c)-175/1	1.75mm Cannulated Drill Bit	2
NXHX(c)-17/1	1.7mm Cannulated Hex Driver	2
MSHD/1	Small Surgical Handle	1
NXLD/1	NX Nail System Tray Lid	1
NXTY-25/1	2.5mm NX Nail System Tray	1
IMPLANTS		
NXNC-2512/1	2.5mm x 12mm NX Nail	2
NXNC-2514/1	2.5mm x 14mm NX Nail	2
NXNC-2516/1	2.5mm x 16mm NX Nail	2
NXNC-2518/1	2.5mm x 18mm NX Nail	2
NXNC-2520/1	2.5mm x 20mm NX Nail	2
NXNC-2525/1	2.5mm x 25mm NX Nail	2
NXNC-2530/1	2.5mm x 30mm NX Nail	2
NXNC-2535/1	2.5mm x 35mm NX Nail	2
NXNC-2540/1	2.5mm x 40mm NX Nail	2
NXNC-2545/1	2.5mm x 45mm NX Nail	2
NXNC-2550/1	2.5mm x 50mm NX Nail	2
NXNC-2555/1	2.5mm x 55mm NX Nail	2
NXNC-2560/1	2.5mm x 60mm NX Nail	2

3.0MM NAIL SYSTEM

CAT NO.	DESCRIPTION	QTY
INSTRUMENTS		
KWDT–10100/5	1.0mm x 100mm K-wire	5
NXDG–30/1	3.0mm NX Depth Gauge	1
NXMD–30/1	3.0 Metaphyseal Cannulated Hand Drill	1
NXED–30/1	3.0 Extended Metaphyseal Cannulated Hand Drill	1
NXDL(c)–200/1	2.0mm Cannulated Drill Bit	2
NXTX(c)–T8/1	T8 Cannulated Torx Driver	2
MSHD/1	Small Surgical Handle	1
NXLD/1	NX Nail System Tray Lid	1
NXTY–30/1	3.0mm NX Nail System Tray	1
IMPLANTS		
NXNC–3025/1	3.0mm x 25mm NX Nail	2
NXNC–3030/1	3.0mm x 30mm NX Nail	2
NXNC–3035/1	3.0mm x 35mm NX Nail	2
NXNC–3040/1	3.0mm x 40mm NX Nail	2
NXNC–3045/1	3.0mm x 45mm NX Nail	2
NXNC–3050/1	3.0mm x 50mm NX Nail	2
NXNC–3055/1	3.0mm x 55mm NX Nail	2
NXNC–3060/1	3.0mm x 60mm NX Nail	2
NXNC–3070/1	3.0mm x70mm NX Nail	2

3.5MM NAIL SYSTEM

CAT NO.	DESCRIPTION	QTY
INSTRUMENTS		
KWDT-12150/5	1.2mm x 150mm K-wire	5
NXDG-35/1	3.5mm NX Depth Gauge	1
NXMD-35/1	3.5 Metaphyseal Cannulated Hand Drill	1
NXED-35/1	3.5 Extended Metaphyseal Cannulated Hand Drill	1
NXDL(c)-240/1	2.4mm Cannulated Drill Bit	2
NXTX(c)-T10/1	T10 Cannulated Torx Driver	2
NXLH/1	Large Ratcheting Surgical Handle	1
NXLD/1	NX Nail System Tray Lid	1
NXTY-35/1	3.5mm NX Nail System Tray	1
IMPLANTS		
NXNC-3525/1	3.5mm x 25mm NX Nail	2
NXNC-3530/1	3.5mm x 30mm NX Nail	2
NXNC-3535/1	3.5mm x 35mm NX Nail	2
NXNC-3540/1	3.5mm x 40mm NX Nail	2
NXNC-3545/1	3.5mm x 45mm NX Nail	2
NXNC-3550/1	3.5mm x 50mm NX Nail	2
NXNC-3555/1	3.5mm x 55mm NX Nail	2
NXNC-3560/1	3.5mm x 60mm NX Nail	2
NXNC-3570/1	3.5mm x 70mm NX Nail	2

4.0MM NAIL SYSTEM

CAT NO.	DESCRIPTION	QTY
INSTRUMENTS		
KWDT-12150/5	1.2mm x 150mm K-wire	5
NXDG-35/1	4.0mm NX Depth Gauge	1
NXMD(c)-40/1	4.0mm Metaphyseal Cannulated Hand Drill	1
NXED-40/1	4.0 Extended Metaphyseal Cannulated Hand Drill	1
NXDL(c)-240/1	2.75mm Cannulated Drill Bit	2
NXTX(c)-T15/1	T15 Cannulated Torx Driver	2
NXLH/1	Large Ratcheting Surgical Handle	1
NXLD/1	NX Nail System Tray Lid	1
NXTY-40/1	4.0MM NX Nail System Tray	1
IMPLANTS		
NXNC-4035/1	4.0mm x 35mm NX Nail	2
NXNC-4040/1	4.0mm x 40mm NX Nail	2
NXNC-4045/1	4.0mm x 45mm NX Nail	2
NXNC-4050/1	4.0mm x 50mm NX Nail	2
NXNC-4055/1	4.0mm x 55mm NX Nail	2
NXNC-4060/1	4.0mm x 60mm NX Nail	2
NXNC-4070/1	4.0mm x 70mm NX Nail	2
NXNC-4080/1	4.0mm x 80mm NX Nail	2

5.0MM NAIL SYSTEM

CAT NO.	DESCRIPTION	QTY
INSTRUMENTS		
KWDT-16150/5	1.6mm x 150mm K-wire	5
NXDG-35/1	5.0mm NX Depth Gauge	1
NXMD(c)-50/1	5.0mm Metaphyseal Cannulated Hand Drill	1
NXED-50/1	5.0 Extended Metaphyseal Cannulated Hand Drill	1
NXDL(c)-350/1	3.5mm Cannulated Drill Bit	2
NXTX(c)-T20/1	T20 Cannulated Torx Driver	2
NXLH/1	Large Ratcheting Surgical Handle	1
NXLD/1	NX Nail System Tray Lid	1
NXTY-50/1	5.0mm NX Nail System Tray	1
IMPLANTS		
NXNC-5035/1	5.0mm x 35mm NX Nail	2
NXNC-5040/1	5.0mm x 40mm NX Nail	2
NXNC-5045/1	5.0mm x 45mm NX Nail	2
NXNC-5050/1	5.0mm x 50mm NX Nail	2
NXNC-5055/1	5.0mm x 55mm NX Nail	2
NXNC-5060/1	5.0mm x 60mm NX Nail	2
NXNC-5070/1	5.0mm x 70mm NX Nail	2
NXNC-5080/1	5.0mm x 80mm NX Nail	2
NXNC-5090/1	5.0mm x 90mm NX Nail	2

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