

Smith+Nephew

CAPTURE Screw System

Surgical Technique

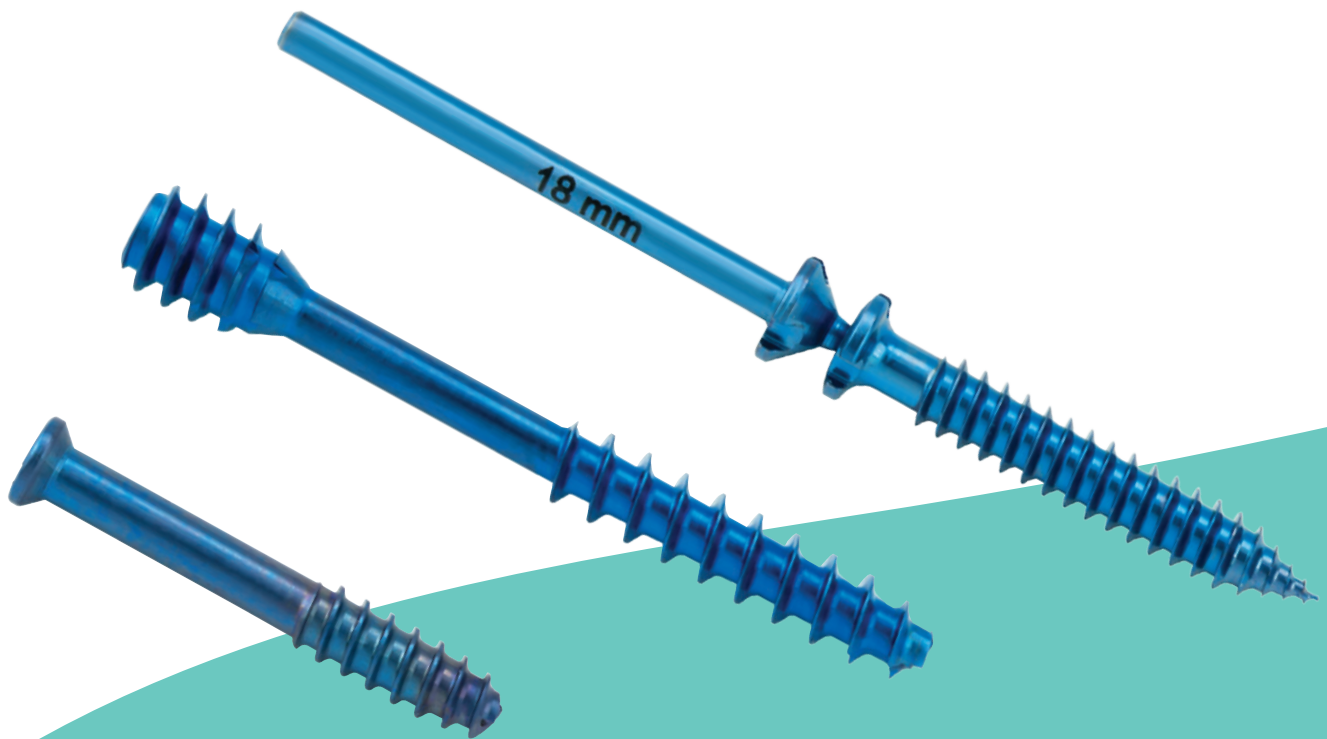


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Note Bena

The following technique guide is intended for informational and educational purposes only. It is not intended to serve as medical advice. It is the responsibility of treating physicians to determine and utilize the appropriate products and techniques, according to their own clinical judgment, for each of their patients. For more information on the product, including its indications for use, contraindications, and product safety information, please refer to the product’s label and the Instructions for Use packaged with the product.

Prior to performing this technique, please consult the Instructions for Use documentation provided with each device for additional health and safety information, including indications, contraindications, warnings and precautions.

System description

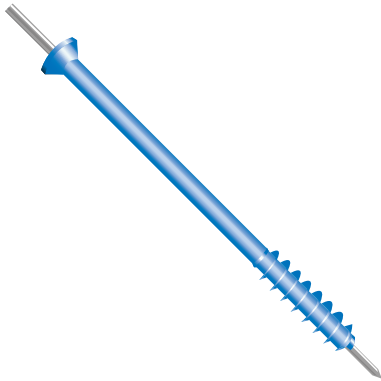
The Smith+Nephew CAPTURE Screw System is comprised of three types of screws used for various bone fixation procedures. Available screws and instrumentation are packaged as a single system and organized around the three types of screws described below:

- The Cannulated Low-Profile Screws (AC-Series) are cannulated, threaded bone screws which are offered in 2.0, 2.5, 3.0, and 4.0mm diameters with lengths of 6-50mm.
- The Headless Screws (AH-Series) are cannulated, dual-thread, headless bone screws which are offered in 2.5mm and 3.0mm diameters with lengths of 10-38mm.
- The Quick-Snap Screws (AQ-Series) are snap-off solid core screws which are offered in 2.0mm and 2.7mm diameters with lengths of 8-22mm.
- Digital Fusion Screws (AD-Series) are cannulated titanium 2.0mm diameter ranging from 24-50mm length.

System features

- The base instrument set contains a Ratchet Driver, which is recommended for the AC, AD and AH Series screws. The ratchet dial can be set to three positions: forward, stationary and reverse.
- The base instrument set provides three variations of bone clamps. Utilize the desired bone clamp whenever possible to hold and/or compress bone cuts during screw insertion.
- The base instrument set contains a titanium swivel handle for inserting small AQ-Series screws.
- Combination AC-Series Depth Gauge and Countersink eliminates steps and allows precise measurement.
- The AQ-Series driver shaft is cannulated to accept the QuickSnap screw shank. It has 3 prongs that grasp the slots of both the screw shank as well as the screw head.
- AD-Series features depth gauge, ratchet driver and AO attachments for use with standard power.

System overview



Cannulated Low-Profile Screws (AC-Series)

The AC-Series is comprised of cannulated instrumentation and a titanium cannulated implant offered in four diameters.

Diameters	Lengths
2.0mm	6-22mm
2.5mm	8-30mm
3.0mm	10-40mm
4.0mm	12-50mm

Screw Features

- Hybrid threads designed for cancellous and cortical bone
- Cannulated, self-drilling, self-tapping

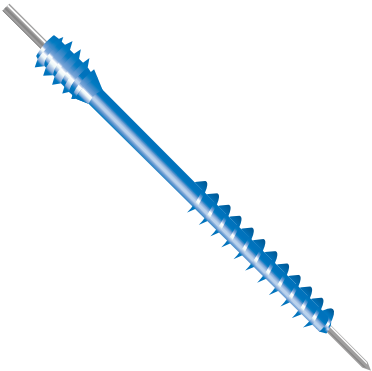
Headless Screws (AH-Series)

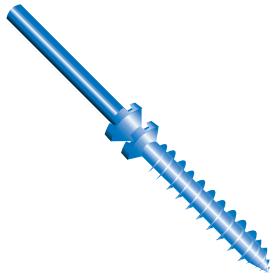
The AH-Series implant is a dual-thread, cannulated bone screw. This implant offers variable pitched threads for compression. Offered in these sizes:

Diameters	Lengths
2.5mm	10-30mm
3.0mm	10-38mm

Screw Features

- Cannulated, self-drilling, self-tapping





QuickSnap Screws (AQ-Series)

The AQ-Series implant is specifically designed for lesser metatarsal and small bone procedures. This implant features a snap-off shank which is broken off after the screw is inserted into bone. Available in these sizes:

Diameters	Lengths
2.0mm	8-16mm
2.7mm	12-22mm

Screw Features

- Insertion with K-wire or manual driver
- Self-drilling tip

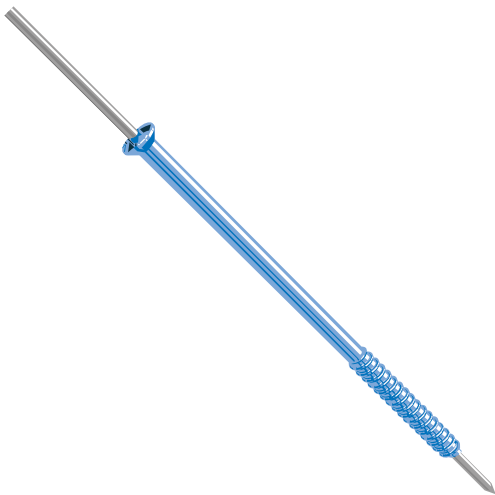
Digital Fusion Screws (AD-Series)

The AD-Series features 2.0mm cannulated screws made from a titanium alloy. The screws are available in sizes ranging from 24-50mm to address fusions for all lesser digits. The system features double trocar pointed wires, a combination countersink/depth gauge, a high speed ratcheting handle and a modified cruciform driver shaft.

Diameters	Lengths
2.0mm	24-50mm

Screw Features

- Cannulated system
- Range of sizes for use in all lesser digits
- Includes ratchet driver for quick manual insertion
- AO style connections for use with standard power
- Self-contained tray with instrumentation



Surgical technique

Cannulated Low-Profile Screws (AC-Series) Scarf Osteotomy

Scarf Osteotomy

1-1 Place a bone clamp to create the necessary compression across the osteotomy or fusion site (when applicable).

Note: This step is very important if bone is very dense and in arthrodeses, as the axial force necessary for inserting the AC-Series screw could temporarily distract the fragments at the fracture/arthrodesis line.

2-1 Insert the appropriately sized guide wire to the correct length under image intensification. Insert the guide wire in 5-10mm increments to avoid bending the wire.

3-1 Slide the appropriately sized depth gauge/countersink over the guide wire until the countersink tip contacts bone.

Rotate the countersink back and forth to create the necessary recess in the bone.

Measure the desired screw length by evaluating the end of the guide wire in relation to the marks on the depth gauge.

4-1 Optional: For 3.0mm and 4.0mm screws in dense cortical bone, pre-drilling the near cortex using the cannulated overdrill is recommended to reduce the axial force necessary for inserting the screw.

5-1 Use the screw forceps to remove the desired cannulated screw from the screw tray. Slide the screw over the guide wire.

Using the ratcheting screwdriver and driver shaft, drive the AC-Series screw into bone until the desired compression is achieved.

If the screw meets unusual resistance, remove guide wire and continue driving the screw. Remove and discard the guide wire.

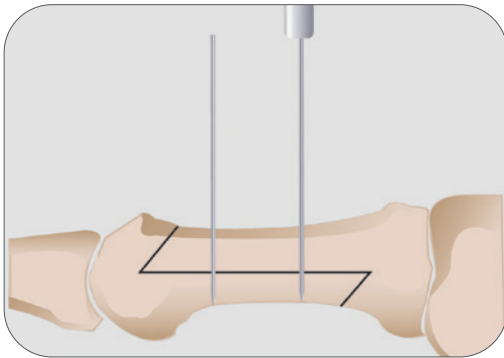


Figure 2-1

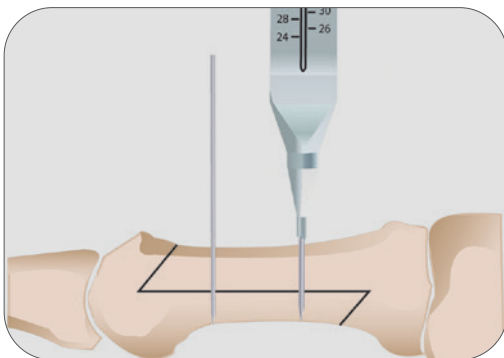


Figure 3-1

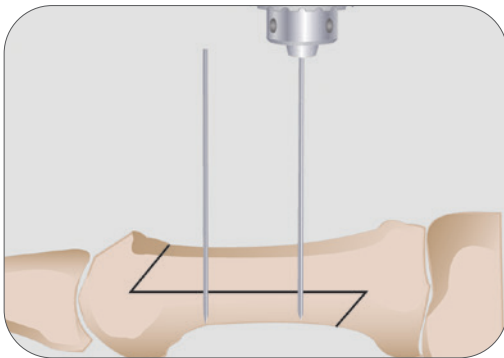


Figure 4-1

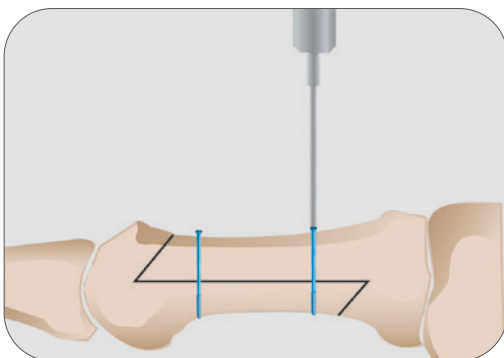


Figure 5-1

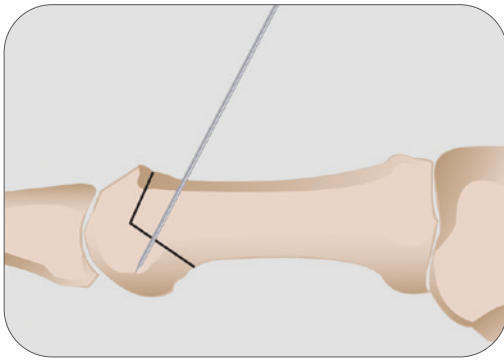


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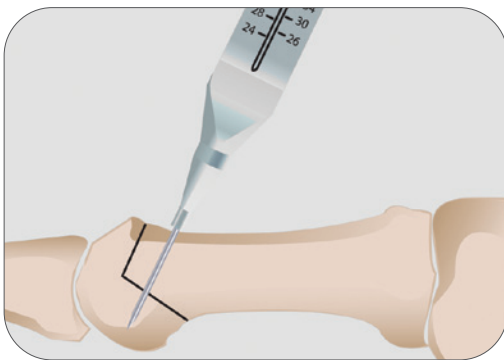


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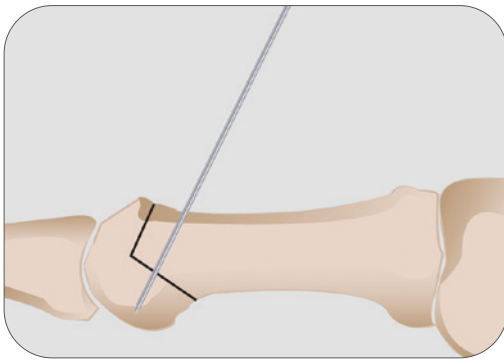


Figure 4-1

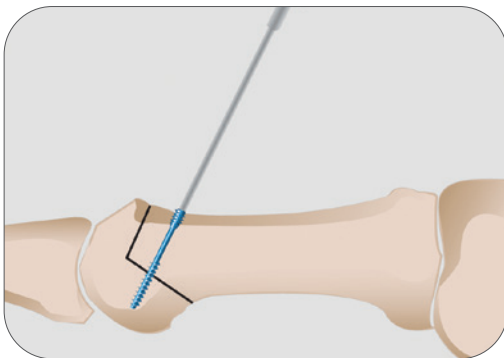


Figure 5-1

Cannulated Low-Profile Screws (AC-Series) Austin/Chevron Osteotomy

Austin/Chevron Osteotomy

1-1 Place a bone clamp to create the necessary compression across the osteotomy or fusion site (when applicable).

Note: This step is very important if bone is very dense and in arthrodeses, as the axial force necessary for inserting the AC-Series screw could temporarily distract the fragments at the fracture/arthrodesis line.

2-1 Insert the appropriately sized guide wire to the correct length under image intensification. Insert the guide wire in 5-10mm increments to avoid bending the wire.

3-1 Slide the appropriately sized depth gauge/countersink over the guide wire until the countersink tip contacts bone.

Rotate the countersink back and forth to create the necessary recess in the bone.

Measure the desired screw length by evaluating the end of the guide wire in relation to the marks on the depth gauge.

4-1 Optional: For 3.0mm and 4.0mm screws in dense cortical bone, pre-drilling the near cortex using the cannulated overdrill is recommended to reduce the axial force necessary for inserting the screw.

5-1 Use the screw forceps to remove the desired cannulated screw from the screw tray. Slide the screw over the guide wire.

Using the ratcheting screwdriver and driver shaft, drive the AC-Series screw into bone until the desired compression is achieved.

If the screw meets unusual resistance, remove guide wire and continue driving the screw. Remove and discard the guide wire.

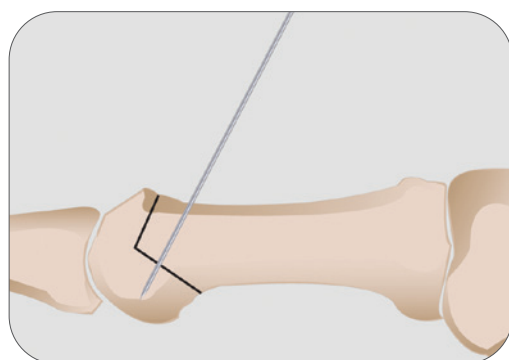


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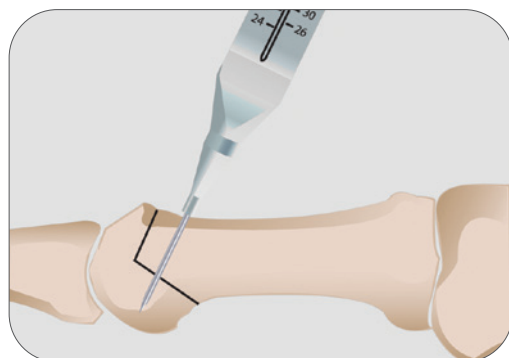


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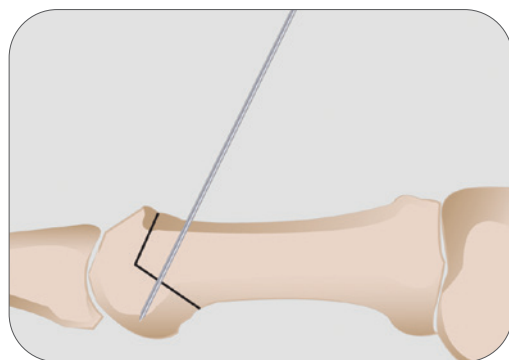


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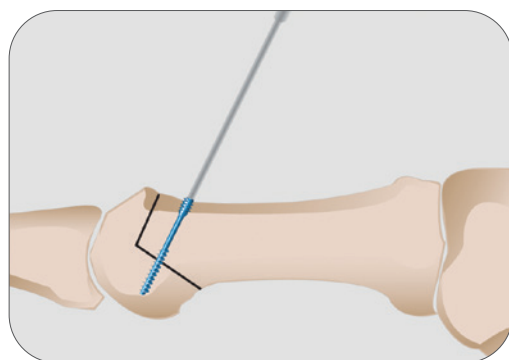


Figure 5-1

Headless Screws (AH-Series) Austin/Chevron

1-1 Place a bone clamp to create the necessary compression across the osteotomy or fusion site (when applicable).

Note: This step is very important if bone is very dense and in arthrodeses, as the axial force necessary for inserting the AC-Series screw could temporarily distract the fragments at the fracture/arthrodesis line.

2-1 Insert the appropriately sized guide wire to the correct length under image intensification. Insert the guide wire in 5-10mm increments to avoid bending the wire.

3-1 Slide the depth gauge over the guide wire until the tip contacts bone. Measure the desired screw length by evaluating the end of the guide wire in relation to the marks on the depth gauge.

4-1 Use the AH-Series cannulated relief drill to overdrill the proximal cortex to create a pilot hole for the screw. Drill with the 1st notch for the 2.5mm screws and the 1st and 2nd notches for the 3.0mm screws.

5-1 Use the screw forceps to remove the desired AH-Series screw from the screw tray. Slide the screw over the guide wire.

Use the appropriately sized screwdriver handle and driver shaft to drive the AH-Series screw into bone until the desired compression is achieved. The head of the screw should rest flush with the proximal cortex.

If the screw meets unusual resistance, remove the guide wire and continue driving the screw. Remove and discard the guide wire.

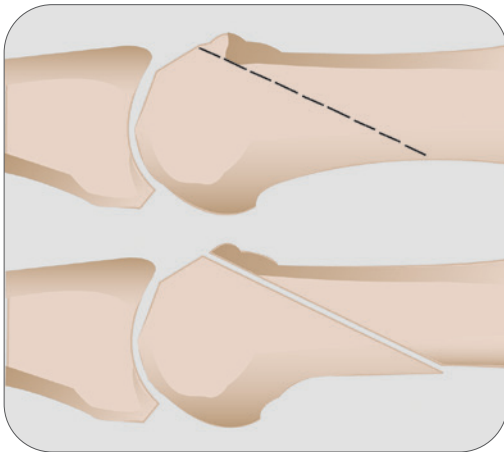


Figure 1-1

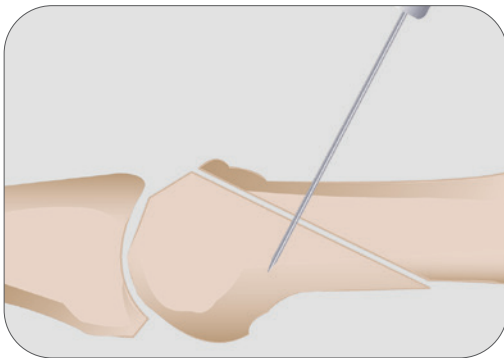


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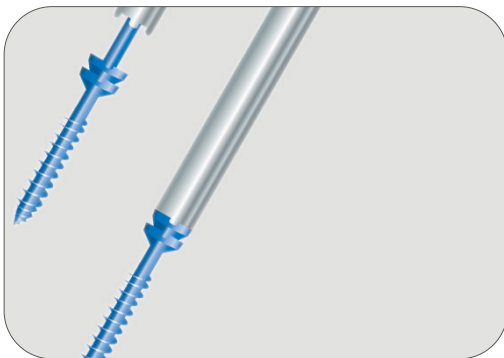


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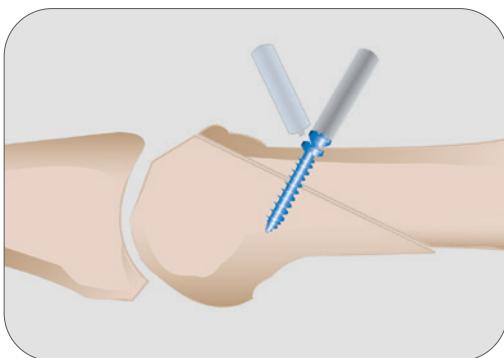


Figure 4-1

QuickSnap Screws (AQ-Series) Weil Osteotomy

1-1 After making the appropriate bone cuts, use a guide wire to initiate a 1mm deep pilot hole that penetrates the proximal cortex.

2-1 Load the appropriate AQ-Series screw into the 3-prong manual driver or into a K-wire driver.

3-1 While compressing the osteotomy with hand pressure, drive the screw using the manual driver or K-wire driver until the distal head is flush with the bone.

4-1 Tilt the manual driver or K-wire driver in the opposite angle of the screw direction to snap off the shank.

If necessary, use the 3-prong driver to finish driving the screw to the desired depth.

Using a power drill or pin driver:

The QuickSnap screw is also designed to be driven with a power drill or pin driver. Use the 3-prong driver to complete insertion if the screw snaps off before reaching the proximal cortex.

Important: If the screw shank snaps off prior to completion, engage the 3-prong driver over the remaining screw head to finish driving the screw.

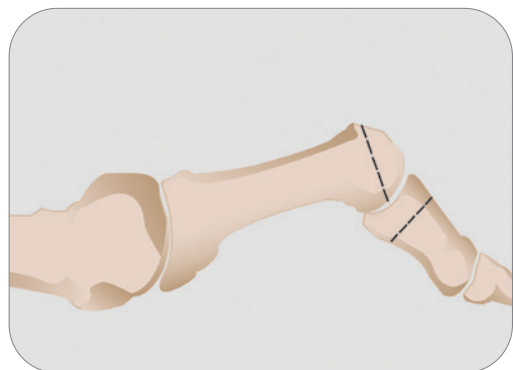


Figure 1-1

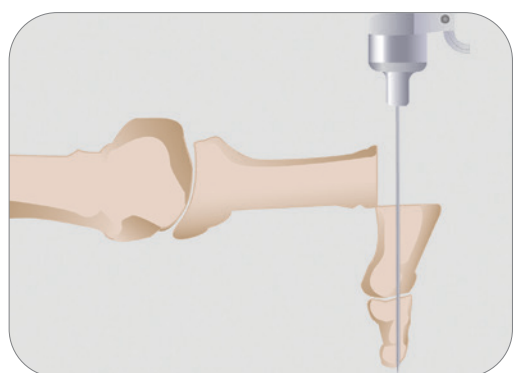


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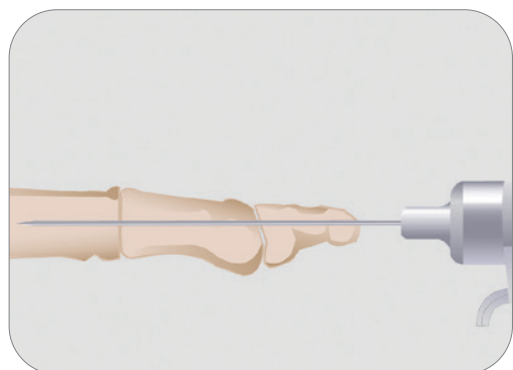


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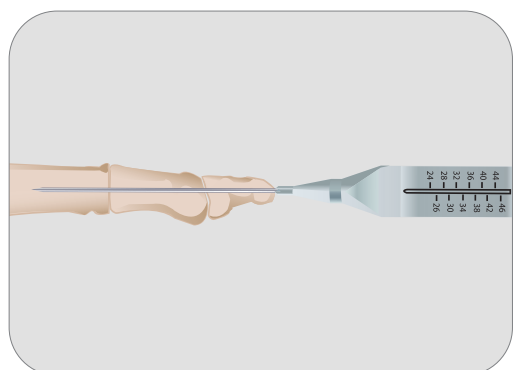


Figure 3-2

Digital Fusion (AD-Series)

1-1 Trial Plate Positioning: Use the trial implant (339 005ND or 339 004ND) to determine the appropriate plate configuration. Depending on the indication, the surgical exposure may not accommodate the trial plate. Place the graduated end of the trial over the larger bone (fragment), under the soft tissue to minimize irritation.

2-1 Using the included K-wire (AW1111), Drive the wire through the center of the middle and distal phalanx, and then out through the tip of the toe. Retrograde the wire proximal until it is protruding 2-4mm from the resected base of the middle phalanx.

3-1 Final K-wire Positioning: Position the toe into the preferred anatomical alignment and drive the wire into the center of the proximal phalanx to the location and depth of the final intended screw location. The use of a mini C-arm may be useful at this point if there is uncertainty as to the location and depth of the wire.

3-2 Distal Incision and Countersinking: Place a small transverse incision (3-4mm long) in the tip of the toe and dissect any soft tissue around the distal tuft. Place combination Countersink/Depth Gauge over the wire and lightly countersink the tip of the distal phalanx.

Note: Countersinking is optional if the screw will be removed after fusion has occurred. With the countersink in place, read the gauge to determine the proper screw length.

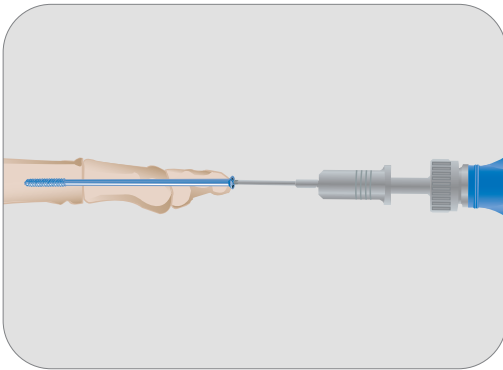


Figure 4-1

4-1 Screw Placement: Select the correct length screw and slide the screw over the wire and into position. Using the included driver and ratcheting handle, drive the screw into position and compress the proximal interphalangeal (PIP) joint. Do not over tighten the screw. Damage to the screw or the drive feature of the screw can result from over-tightening. In most cases, two finger tightening is adequate. If unusual resistance or jamming of the screw occurs, do not continue to advance screw. Check and reposition the K-wire so that it is centered in the medullary canal and not engaging the cortical wall.

4-2 Closure: Remove the K-wire and close the incisions with suture material of choice.

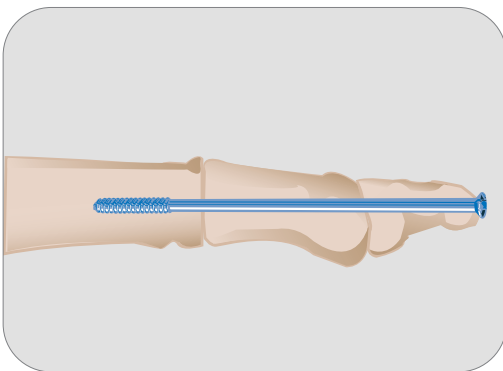


Figure 4-2

Product information

Smith+Nephew CAPTURE Low-Profile Cannulated Screws

2.0mm	2.5mm	3.0mm	4.0mm
AC2006	AC2508	AC3010	AC4012
AC2008	AC2510	AC3012	AC4014
AC2010	AC2512	AC3014	AC4016
AC2012	AC2514	AC3016	AC4018
AC2014	AC2516	AC3018	AC4020
AC2016	AC2518	AC3020	AC4022
AC2018	AC2520	AC3022	AC4024
AC2020	AC2522	AC3024	AC4026
AC2022	AC2524	AC3026	AC4028
	AC2526	AC3028	AC4030
	AC2528	AC3030	AC4032
	AC2530	AC3032	AC4034
		AC3034	AC4036
		AC3036	AC4038
		AC3040	AC4040
			AC4042
			AC4046
			AC4050

Headless Screws

2.5mm	3.0mm
AH2510	AH3010
AH2512	AH3012
AH2514	AH3014
AH2516	AH3016
AH2518	AH3018
AH2520	AH3020
AH2522	AH3022
AH2524	AH3024
AH2526	AH3026
AH2528	AH3028
AH2530	AH3030
	AH3032
	AH3034
	AH3036
	AH3038

QuickSnap Screws

2.0mm	2.7mm
AQ2008	AQ2712
AQ2010	AQ2714
AQ2011	AQ2716
AQ2012	AQ2718
AQ2014	AQ2720
AQ2016	AQ2722

Digital Fusion Screws

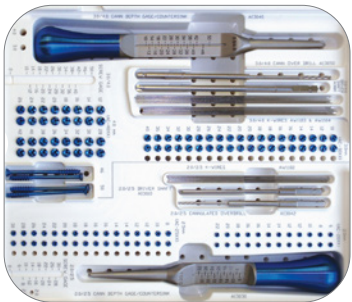
2.0mm
AD2024
AD2026
AD2028
AD2030
AD2032
AD2034
AD2036
AD2038
AD2040
AD2042
AD2044
AD2046
AD2048
AD2050

Disposables

Catalog Number	Description	Length
AI-3042	TC 2.0 / 2.5 Overdrill	1.65mm
AI-3050	TC 3.0 / 4.0 Overdrill	2.26mm
AW1102	2.0 / 2.5 Smooth K-wire	0.9 x 100mm
AW1103	3.0 / 4.0 Smooth K-wire	1.1 x 120mm
AW1104	3.0 / 4.0 Threaded K-wire	1.1 x 120mm
AI-4030	TH Cannulated Relief Drill	2.30 x 3.00mm step
AW1105	TH Smooth K-wire	0.8 x 70mm
AW1111	K-wire, Smooth Double-pointed	0.8 x 90mm

Instruments

Catalog Number	Description
AI1005	Swivel Driver Handle
AI1006	Ratchet Driver Handle
AI1010	Reduction Bone Clamp
AI1012	Serrated Bone Clamp
AI1014	Scarf Bone Clamp
AI1030	Screw Pickup Forceps
AI1040	Screw Removal Instrument
AI3010	TC 2.0 / 2.5 Driver
AI3020	TC 3.0 / 4.0 Driver
AI3030	TC 2.0 / 2.5 Countersink / Depth Gauge
AI3040	TC 3.0 / 4.0 Countersink / Depth Gauge
AI4010	TH Cannulated Driver
AI4020	TH Cannulated Depth Gauge
AI4040	TH Solid Removal Driver
AI5010	TQ 3 Prong Driver Shaft



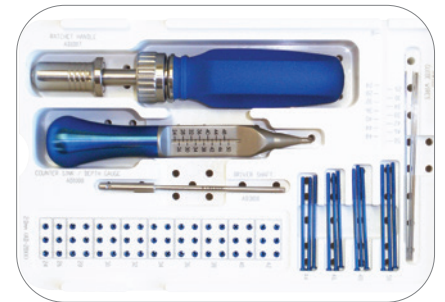
AC-Series



AH-Series / AQ-Series



Base Instruments



AD-Series

Notes

Notes

Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Smith+Nephew representative or distributor if you have questions about the availability of Smith+Nephew products in your area.

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