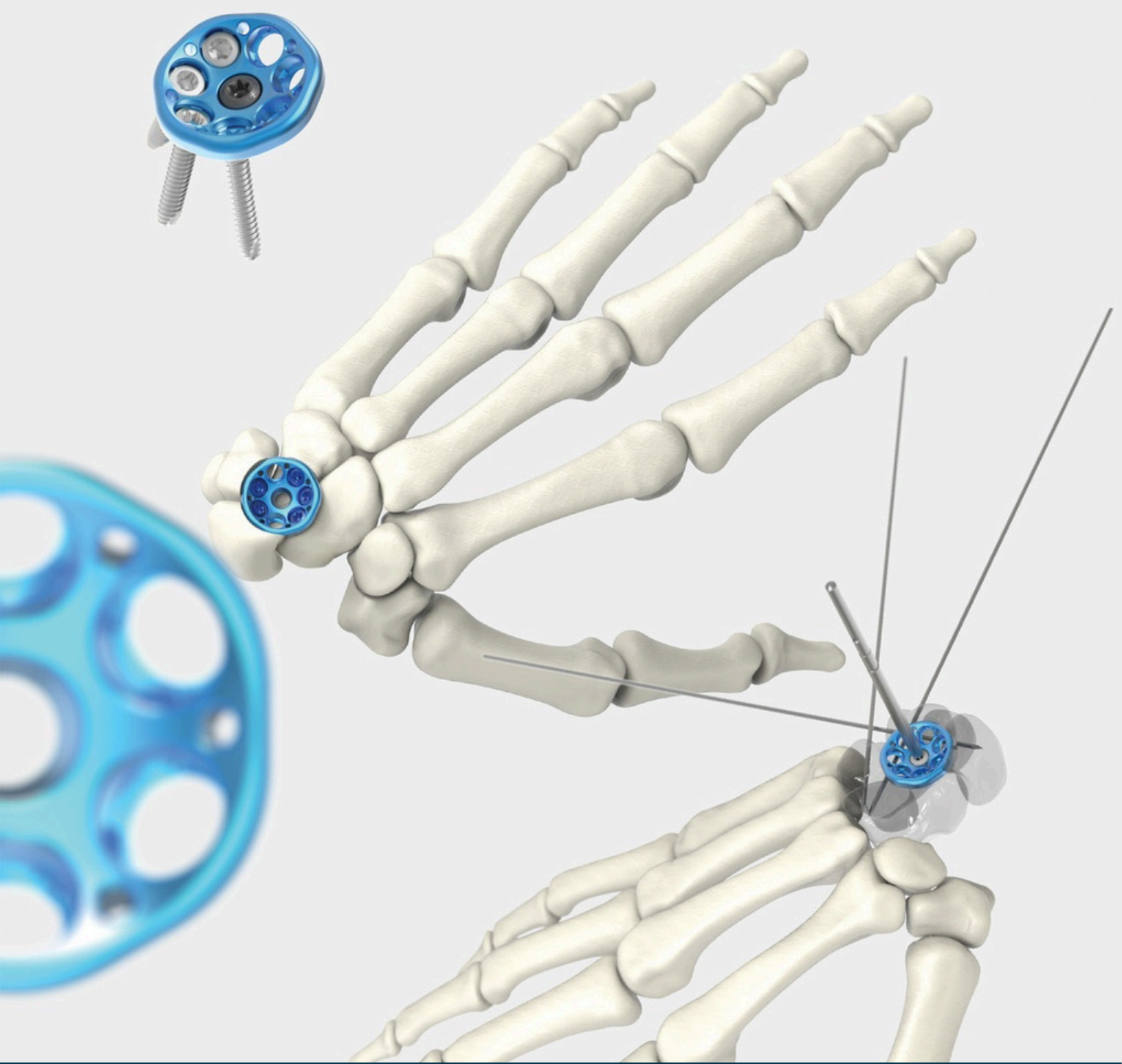

summa ortho

WRIST SYSTEM CARPAL FUSION PLATE

Surgical Technique

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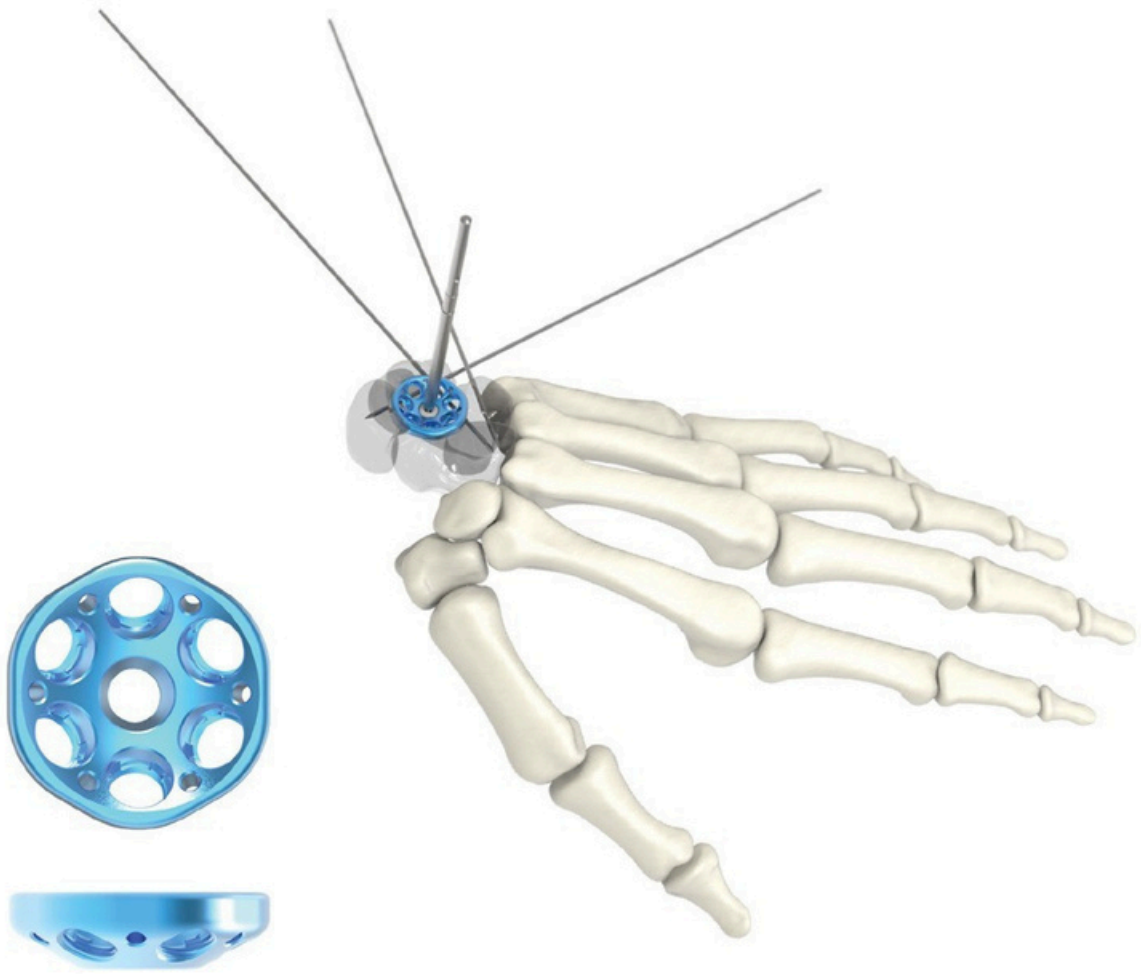
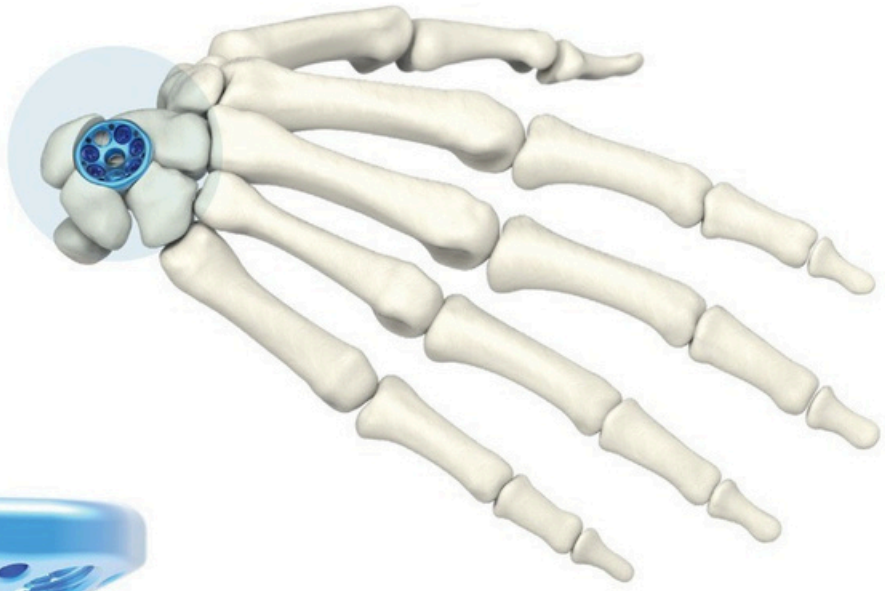


SUMMA Carpal Fusion Plate

Thecarpalbonesare important forthestabilityof the carpus and the hand. However, the size and shape of the carpal bones make the application of standard implants difficult. Therefore, the SUMMA Carpal Fusion Plate provides a specially designed solution for carpal bone fracture and management. SUMMA Carpal Fusion Plate also pursues the pain-free mobility and stability for hand acts in daily living by fixing four-corner bones.

Overview



Features

- CupTypeFusion Plate (6 / 7 screw hole)
- Variable locking up to ±15°
- Two screw types of Locking & Non-locking Screws available
- Low profile Locking Plate
- Φ1.1mm K-wire fixation hole
- Easy positioning with Plate Holder
- Two plate variations with 6 & 7 Hole Plates

Features - continued

SO-25- CAFU-007

7K-wire holes &Locking Screw holes:
Width 17 mm, Height 5 mm

SO-25- CAFU-006

6K-wire holes &Locking Screw holes:
Width 16 mm, Height 5 mm

SUMMA Carpal Fusion Plate

Features - continued

STARIX Screw with T8

Screw Variation

Self-Tapping 2.5 Non-Locking & Locking Screw

- Prevent Cam-out
- Allow Higher Torque Application
- Self-Retaining function
- Locking & Non-Locking Variations available

Variable Locking Interface with Locking Screw

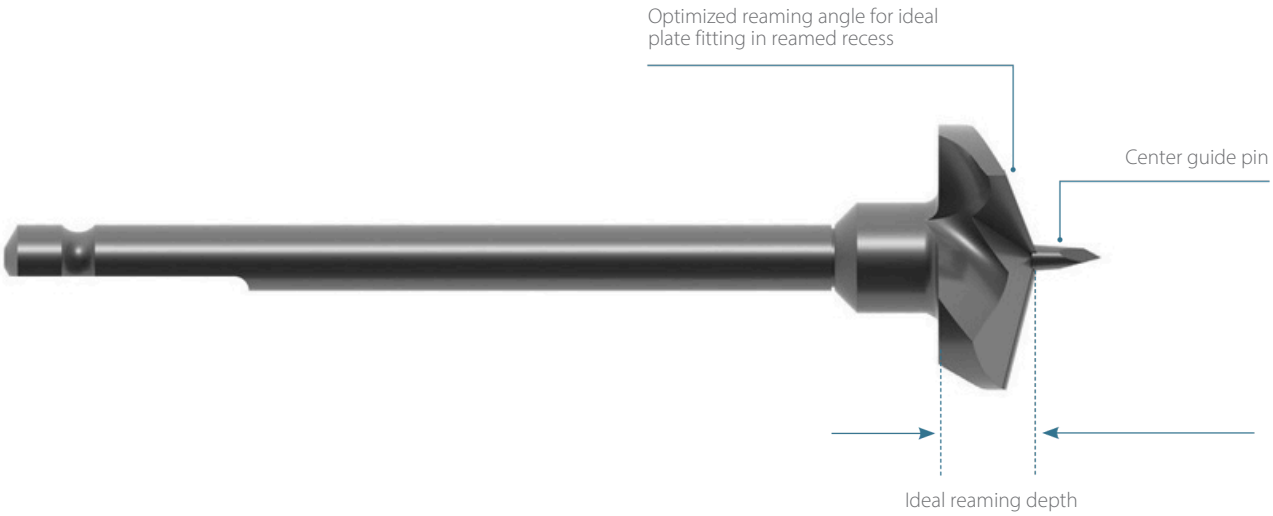
- Poly-axial Screw Insertion
- Angle range: ±15°
- Plate-Screw Locking Interface

Instrument – Variable Angle Drill Sleeve

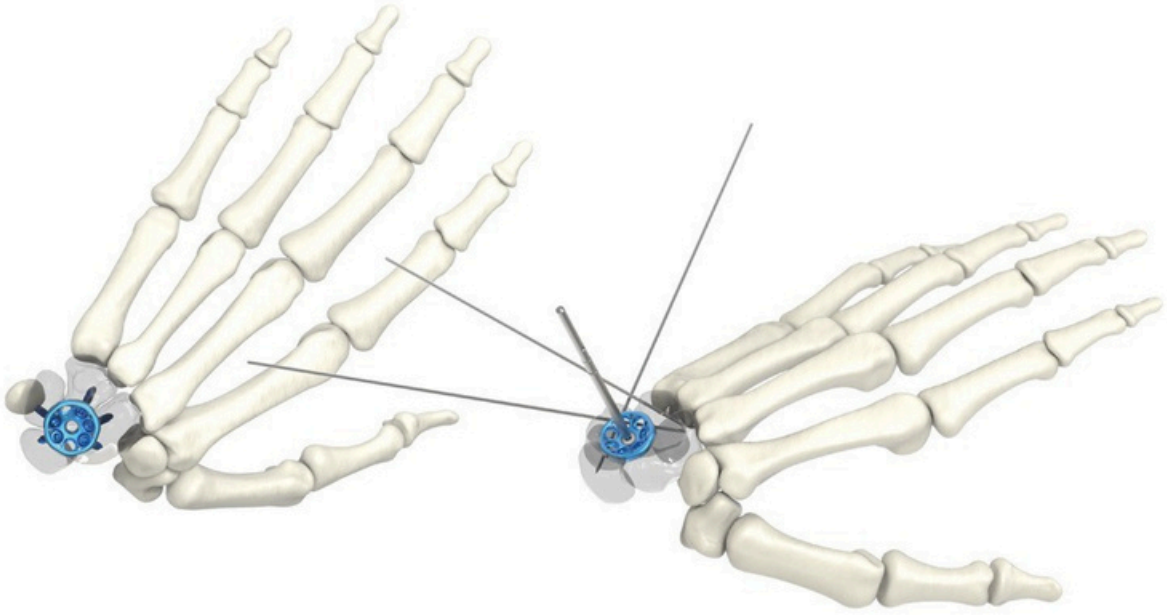
1. The Variable Angle Drill Sleeve enables the screw to be inserted at a user preferred angle within ±15° range.
2. The Drill Sleeve Handle allows for ease of insertion of the drill guide and ensures better visibility for targeting. Before positioning the Drill Sleeve, engage it with the Sleeve Handle. After the Drill Guide is fully engaged with the plate, disconnect the Drill Sleeve Handle. The Drill Sleeve Handle is not required when removing the Drill Sleeve.

Features - continued

Instrument–Reamer/Plate Holder



Advantages



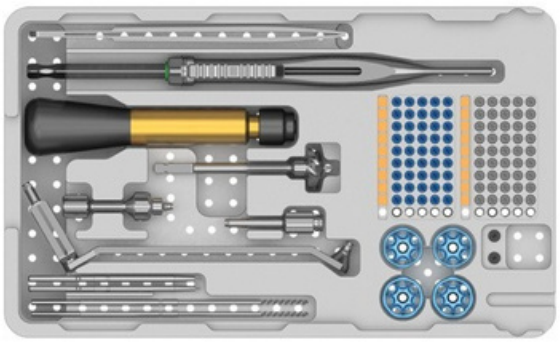
Anatomic
The 3-dimensional plate design is optimized for four-corner and other limited wrist fusion procedures.

Choosability
Two screw options with the variable locking and the non-locking variations make appropriate screw configuration possible.

Easy handling
The SUMMA Carpal Fusion Plates provide Plate Holder for easy plate positioning on carpal bone. Wide range of adjustable screw insertion angles helps to hold the bone fracture fragments more effectively.

Instrumentation

The compactand simple set layout enables intuitive selection of appropriate instruments and reduces confusion in the OR.

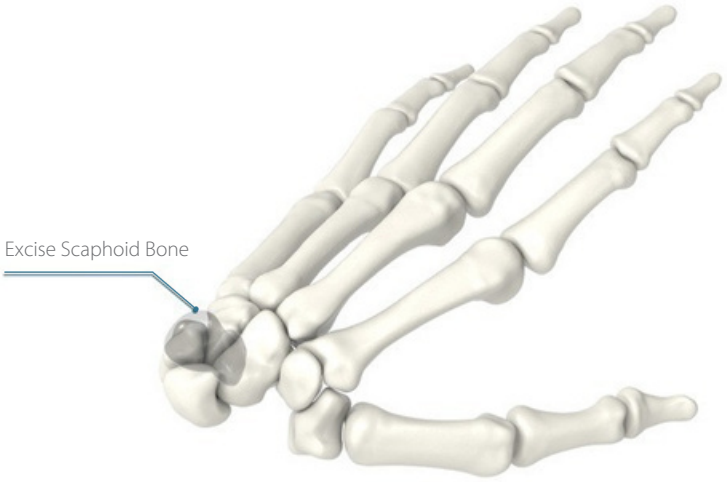


Indications: The SUMMA System(Radius) is intended for use in hand and forearm, osteotomies and arthrode- sis. The SUMMA Wrist System(Ulna) is intended for fractures and osteotomies, in particular for the ulna.

Four Corner Fusion

1. Approach

Makeastandarddorsal longitudinal incision.



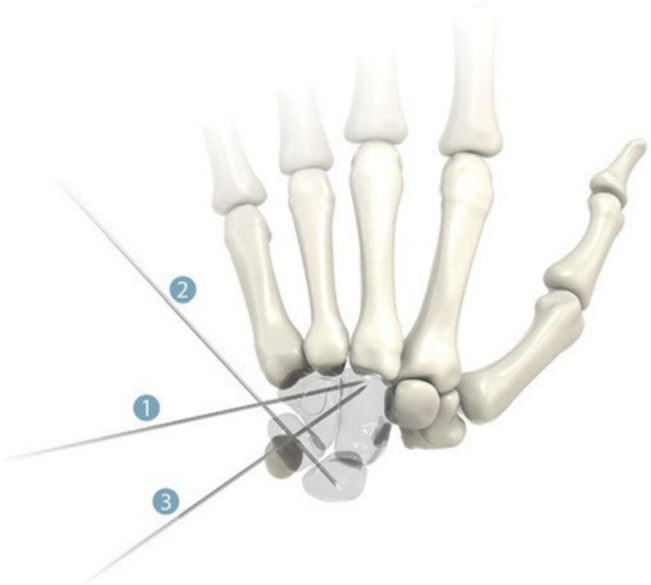
2. Excise Scaphoid

Completely excise the scaphoid and debride the midcarpal joint.

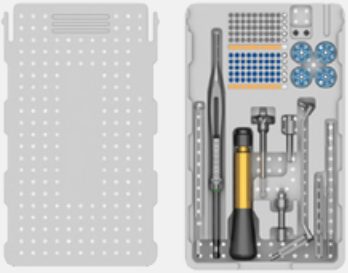
3. Temporary Fixation

Afterexposing the capitate,lunate, hamate and triquetrum, denude the cartilage between the four bones involved in the fusion. Temporary fix the bones with 1.1mm K-wires as volar as possible. Suggested order for K-wires:

1 hamate to capitate, 2 triquetrum to lunate, 3 triquetrum to capitate



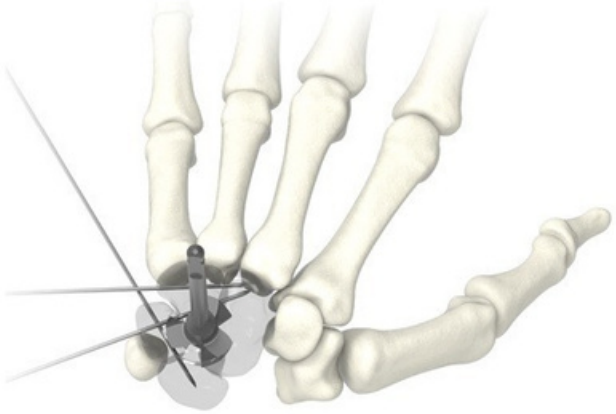
Required Set

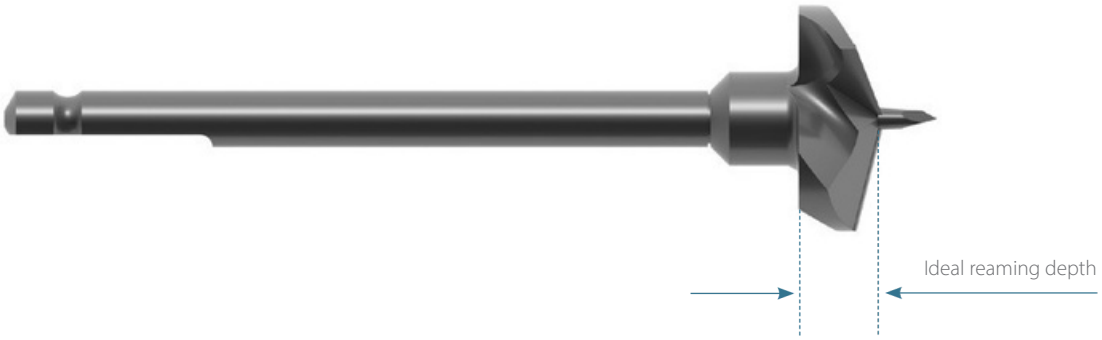


SUMMA Wrist System Carpal Fusion Plate

4. Carpal Bone Reaming & Bone Grafting

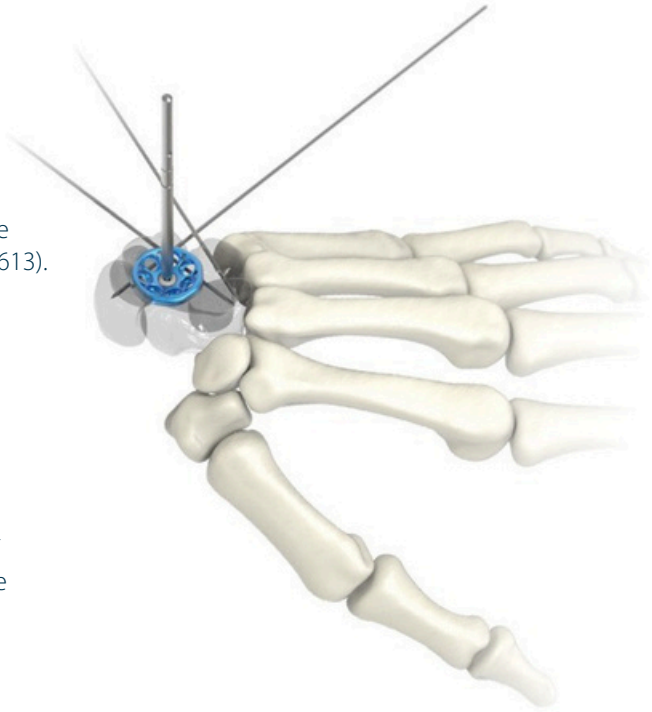
Center the Reamer(SO-111-165) over the junction of the four carpals, targeting the center with the guide tip of the Reamer. Under power, ream until the dorsal surface of the carpals is flush with the reamer blade upper plane (see Fig. 1). This is designed to achieve sufficient void depth below the dorsal surface of the carpals. Fill the space between the four bones with bone graft.





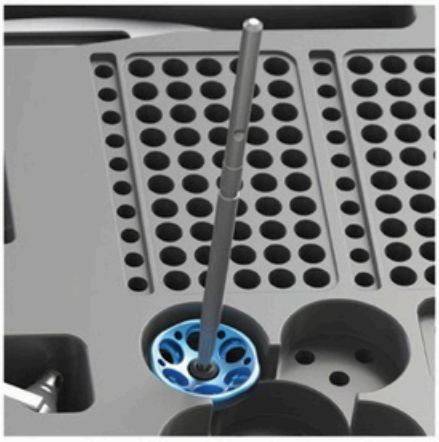
Required Instruments

Reamer
SO-111-165



5. Plate Positioning

- Install the Plate Holder (SO-111-169) into the center of the appropriate sized plate with the Driver Shaft (SO-113-HF-613).
- Pick up the plate using Screw Driver Shaft and place into the depression.
- By plate placing, target the hamate with the single screw hole. Ensure that the placement of this first screw adequately facilitates subsequent screw placement in the three other bones.
- The plate may be provisionally fixed with a Φ1.1mm K-wire(s) to ensure its position.
  :The K-wire(s) and Plate Holder provide multiple points of provisional stabilization, which are designed to secure the plate's position during drilling and screw insertion.



Required Instruments

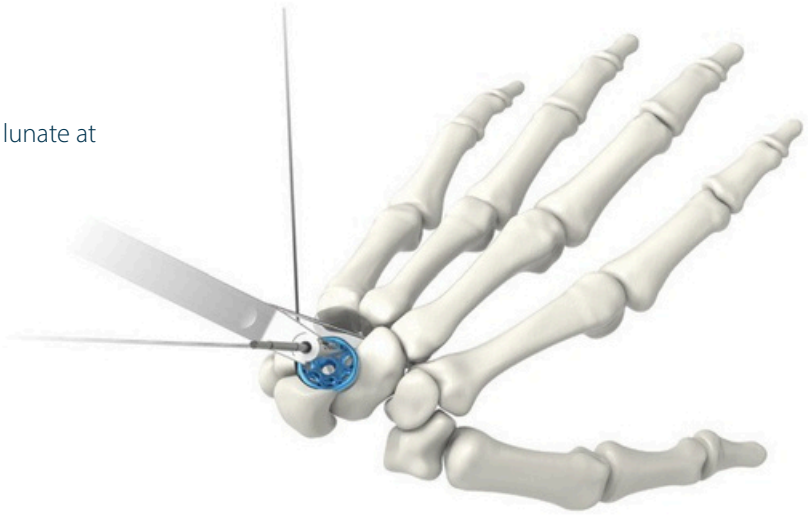
Plate Holder
SO-111-169

Driver
SO-113-HF-613

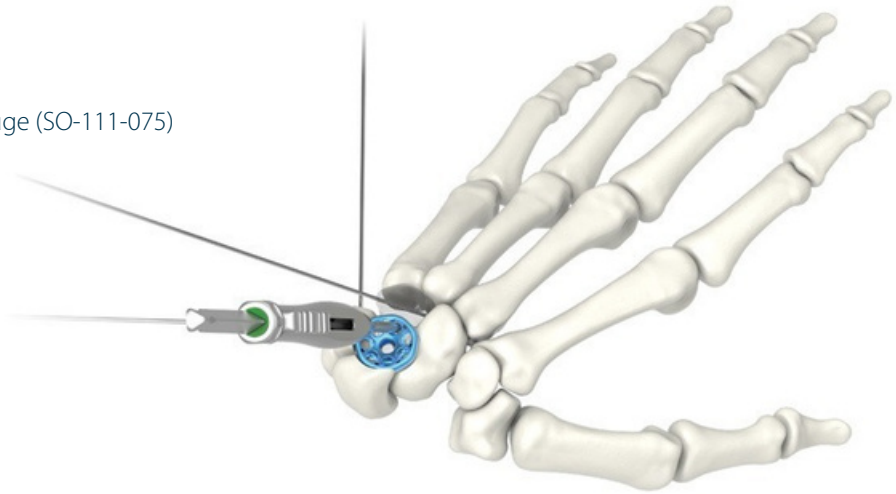
Hand Body
SO-111-010

6. Drilling the Lunate

Using the Drill Guide (SO-111-080), drill into the lunate at the desired angle. Avoid bi-cortical drilling.



Measure screw length using Depth Gauge (SO-111-075)



Required Instruments

Depth Gauge
SO-111-075

Drill Bit
SO-112-25-701

Drill Guide
SO-111-080

Drill Sleeve (Uni.)
SO-111-101

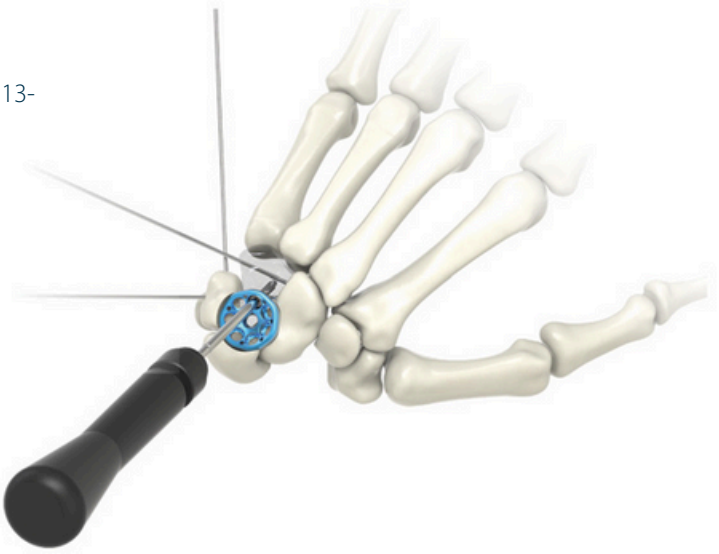
Drill Sleeve (VA.)
SO-111-103

Drill Sleeve Handle
SO-111-157

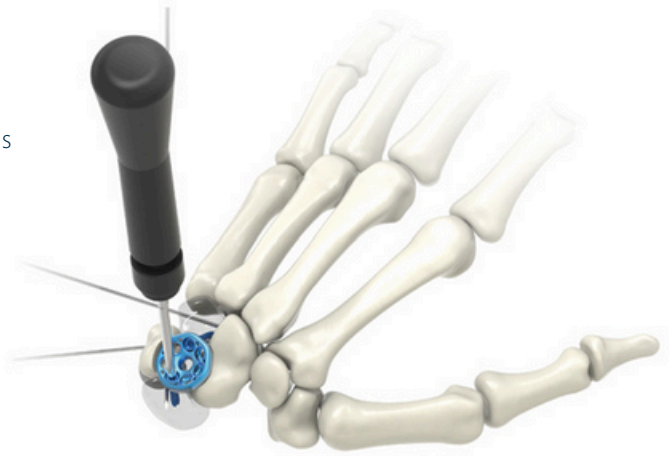
7. Plate Fixation

Insertthe firstscrew using the Screw Driver Shaft (SO-113-HF- 613) attached to the Hand Body (SO-111-010).

Note: *Do not yet fully tighten the screw to lock.*



Continue plate fixation by drilling and inserting a second screw in the lunate. (With two screws and a Plate Holder as fixation, the K-wire used for temporary fixation can be removed.)



Required Instruments

Driver
SO-113-HF-613

Hand Body
SO-111-010

Depth Gauge
SO-111-075

Drill Bit
SO-112-25-701

Drill Guide
SO-111-080

Drill Sleeve (Uni.)
SO-111-101

Drill Sleeve (VA.)
SO-111-103

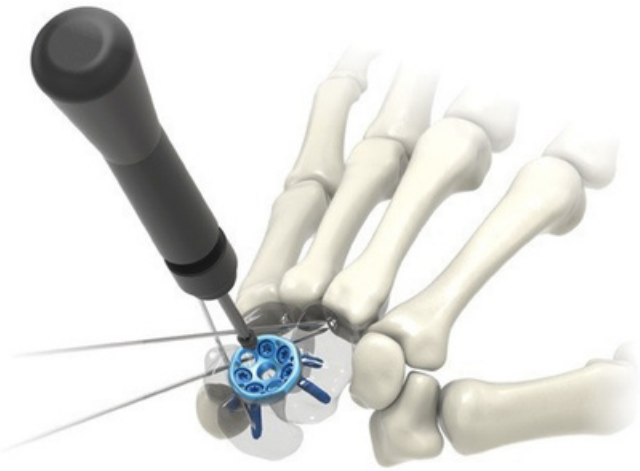
Drill Sleeve Handle
SO-111-157

8. Remaining Screw Insertion and Plate Holder and K-wire(s) Removal

Drill and insertscrews into the remaining holes.Tighten all of the screws to ensure compression of the joint surfaces and promote fusion of the carpals.

Remove the Plate Holder with the Driver (SO-113-HF-613) and K-wire(s), allowing autograft to be packed in the central plate hole.

Note: *Recommended screw insertion order 1) hamate, 2) lunate, 3) capitate, 4) triquetrum. Fill the remaining holes in any order.*



9. Closure and Implant Removal

Close Incision

Use the appropriate method for surgical closure of the incision.

Implant removal

In case the physician decides to remove the implants, implants can be removed by using general surgical instruments.

Required Instruments

Driver
SO-113-HF-613

Hand Body
SO-111-010

Depth Gauge
SO-111-075

Drill Bit
SO-112-25-701

Drill Guide
SO-111-080

Drill Sleeve (Uni.)
SO-111-101

Drill Sleeve (VA.)
SO-111-103

Drill Sleeve Handle
SO-111-157

Implants

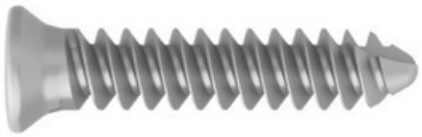
Plates

Carpal Fusion Plate: SO-25-CAFU-006

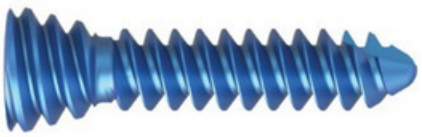
Carpal Fusion Plate: SO-25-CAFU-007

Material: Commercially Pure Titanium, ASTM F67

Screws



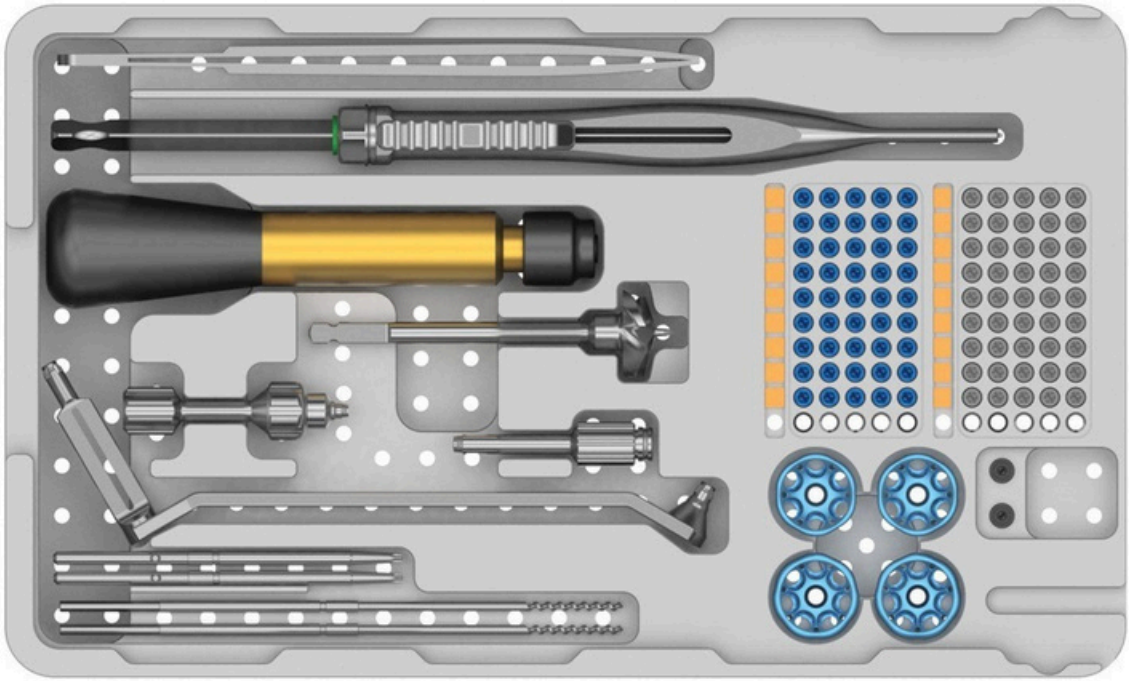
2.5 Non-Locking Screw: SO-25-SO-XXX-TA



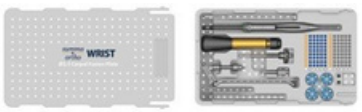
2.5 Locking Screw: SO-25L-SO-XXX-TA

Material: Titanium 6Al 4V Alloy, ASTM F136

Set Configuration



Instruments

Product No.	Name	Material	Remark
SO- 112-25-701	Drill Bit	Stainless steel (ASTM F899)	
SO-113-HF-613	Driver Shaft	Stainless steel (ASTM F899)	
SO-111-010	Hand Body	Aluminum etc.	
SO-111-080	Drill Guide	Stainless steel (ASTM F899)	
SO-11-075	Depth Gauge	Stainless steel (ASTM F899)	
SO-111-101	Drill Sleeve	Stainless steel (ASTM F899)	
SO-111-103	Drill Sleeve	Stainless steel (ASTM F899)	
SO-111-157	Sleeve Handle	Stainless steel (ASTM F899)	
SO-114-009	Forceps	Stainless steel (ASTM F899)	
SO-111-165	Reamer	Stainless steel (ASTM F899)	
SO-111-169	Plate Holder	Titanium (ASTM F136)	
SO-112-118	Container	Aluminum etc.	

Parts List

Ø2.5 Carpal Fusion Kit [112-118]					
Item	Category	Item No.	Category	Q'ty [EA]	Remark
1	2.5 Locking Screw	SO-25L-SO-008-TA	(8mm)_Locking Screw	5	Blue
2		SO-25L-SO-010-TA	(10mm)_Locking Screw	5	Blue
3		SO-25L-SO-012-TA	(12mm)_Locking Screw	5	Blue
4		SO-25L-SO-014-TA	(14mm)_Locking Screw	5	Blue
5		SO-25L-SO-016-TA	(16mm)_Locking Screw	5	Blue
6		SO-25L-SO-018-TA	(18mm)_Locking Screw	5	Blue
7		SO-25L-SO-020-TA	(20mm)_Locking Screw	5	Blue
8		SO-25L-SO-022-TA	(22mm)_Locking Screw	5	Blue
9		SO-25L-SO-024-TA	(24mm)_Locking Screw	5	Blue
10	2.5 Non-locking Screw	SO-25-SO-008-TA	(8mm)_Non-locking Screw	5	Silver
11		SO-25-SO-010-TA	(10mm)_Non-locking Screw	5	Silver
12		SO-25-SO-012-TA	(12mm)_Non-locking Screw	5	Silver
13		SO-25-SO-014-TA	(14mm)_Non-locking Screw	5	Silver
14		SO-25-SO-016-TA	(16mm)_Non-locking Screw	5	Silver
15		SO-25-SO-018-TA	(18mm)_Non-locking Screw	5	Silver
16		SO-25-SO-018-TA	(20mm)_Non-locking Screw	5	Silver
17		SO-25-SO-022-TA	(22mm)_Non-locking Screw	5	Silver
18		SO-25-SO-024-TA	(24mm)_Non-locking Screw	5	Silver
19	Carpal Fusion Plate	SO-25-CAFU-007	7 Locking Hole	2	-
20	Carpal Fusion Plate	SO-25-CAFU-006	6 Locking Hole	2	-
21	Hand Body	SO-111-010	Handle	1	-
22	Depth Gauge	SO-111-075	-	1	-
23	Drill bit	SO-112-25-701	-	2	-
24	Drill Guide	SO-111-080	Uni/VA.	1	-
25	Drill Sleeve	SO-111-101	Fixed Angle	1	-
26		SO-111-103	Variable Angle	1	-
27		SO-111-157	Variable Sleeve Handle	1	-
28	Forceps	SO-114-009	-	1	-
29	Reamer	SO-111-165	Reamer Drill	1	-
30	Plate Holder	SO-111-169	Screw Type	2	-
31	Driver	SO-113-HF-613	Driver Shaft	2	-

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