

Surgical Technique

AV- Wise-Lock Arthrodesis System

about us

Auxein Medical is an integrated, research based, orthopaedic Implants & instruments manufacturing company, producing a wide range of quality, affordable generic implants, trusted by healthcare professionals and patients across geographies. It is the Company's constant endeavor to provide a wide basket of generic and our innovator products that exceed the highest expectations of customers in term of quality and safety. The company has world-class manufacturing unit established in india and serves customers in over 75 countries worldwide.

Our Achievements



Guidelines

This publication sets forth detailed recommended procedures for using Auxein Medical devices and instruments.

It offers guidance that needs to be heeded. However, with any such technical guide, each surgeon must consider the unique needs of each patient and make appropriate adjustments when and as required.

A workshop training under DAIS Academy by Auxein will provide assistance prior to first surgery. It is vital to know that all non-sterile devices must be cleaned and sterilized before use.

Moreover, multi-component instruments must be disassembled for cleaning. The surgeon must discuss all relevant risks, including the finite lifetime of the device, with the patient, when necessary.

Please NOTE that all the bone screws referenced in this document here are not approved for screw attachment or fixation in the areas not mentioned in this publication.

Warning:

This description is not sufficient for immediate application of the instrumentation. Instruction by a surgeon experienced in handling this instrumentation is highly recommended.



System Overview

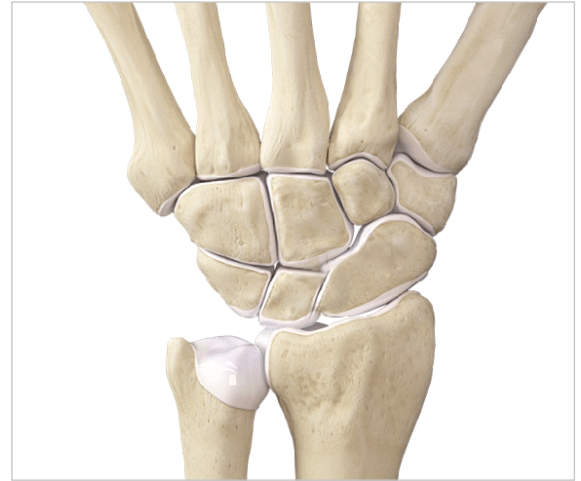
The implant plates of the AV- Wise-Lock Arthrodesis System

Implant Plates	Main Feature	Plate Thickness	System
<p>2.4mm AV-Wiselock Dorsal RSL Fusion M Plate</p> 	Locking	1.6mm	2.4
<p>2.4mm AV-Wiselock Volar RSL Fusion M Plate</p> 	Locking	1.6mm	2.4
<p>2.4mm AV-Wiselock Wrist Fusion M Plate</p>  <p>Long bend Short bend</p>	Locking	2.4mm	2.4
<p>2.4mm AV-Wiselock Dorsal Wrist Fusion M Plate, Radiocapitate</p>  <p>Long bend Short bend</p>	Locking	2.6mm	2.4
<p>2.4mm AV-Wiselock Dorsal Total Wrist Fusion M Plate</p>  <p>Straight Plate Long bend Short bend</p>	Locking	2.6mm	2.4

Step 1:

Patient Positioning and approach:

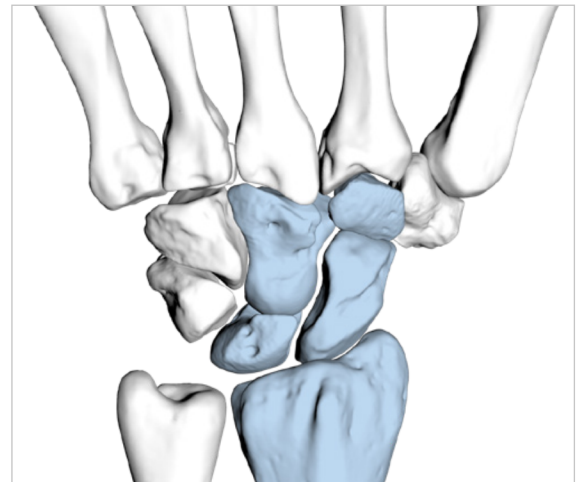
Place the patient in the supine position with the hand and arm on a hand table. Make a longitudinal incision from the radial aspect of the third metacarpal across Lister's tubercle to the dorsum of the distal radius. Make an incision through the wrist capsule and extend it proximally to the radius along its dorsal surface. Elevate the capsule and second dorsal compartment radially, and the capsule and fourth dorsal compartment ulnarly.



Step 2:

Joint surface preparation:

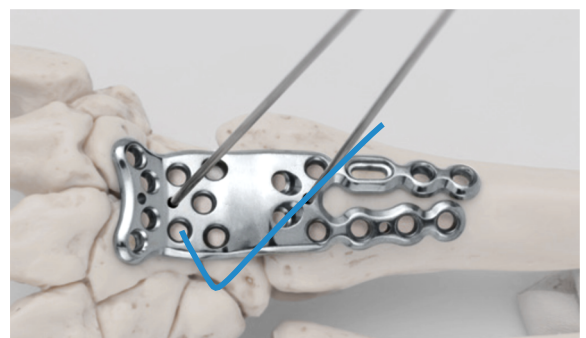
Extra care must be given to the joint surfaces between radius and lunate, radius and scaphoid, lunate and scaphoid, lunate and capitate, scaphoid and capitate, scaphoid and trapezoid as well as between capitate and trapezoid.



Step 3:

Positioning and temporary fixation of plate.

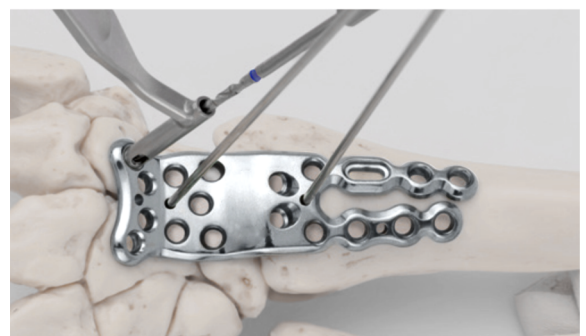
The plate can be temporarily fixed onto the bone by inserting the 1.4mm guide wire through the holes in the plate as shown in the figure. Confirm the alignment and the fixation viewing under image intensifier different angles.



Step 4:

Distal fixation:

Mount the 1.8/2.4 mm Double Drill Guide into the distal hole of the plate. Mount the 1.8 mm Drill bit into the Quick Coupling Handle. Drill the bone by passing the drill bit assembly into the bone through the double drill guide.



Step 5:
Screw Length Measurement:

The Depth gauge (1312-17) is inserted into the drilled hole and the length of the screw required is determined. If required, the 2.4mm Tap (1312-10-2.4) could be attached to the T-Handle (1312-02) and used to create screw threads in the bone for easy screw insertion by passing it through the 2.4mm side of the Double drill guide $\Phi 1.8/\Phi 2.4$ (1312-15).



Step 6:
Screw Insertation:

The screw holding sleeve for 2.4mm Locking Screw is attached to the screwdriver and the assembly is used to pick and insert the 2.4mm Locking screw into the predrill hole. Engage the screw with plate and turn the screwdriver clockwise. For final tightening use the Torque limiter.



Step 7:
Fixation to the radius:

Drill the Capsule hole with 7-012-05 Drill Bit with Quick Coupling, $\Phi 2.0\text{mm}$ x Length 140mm. Use the depth gauge to measure the drill depth and calculate the length of screw required. The screw holding sleeve for 2.7mm Cortical Screw is attached to the screwdriver and the assembly is used to pick and insert the 2.7mm cortical screw into the predrill hole.



Step 8:**Fixation to the carpal bones:**

For additional fixation of scaphoid and lunate, drill a core hole through the pre-angled screw holes using the 2.4 mm Drill bit. Mount the threaded drill onto the pre-angled hole and drill the bone by passing the bit through the threaded sleeve. Fine precaution should be followed by examining the position through C-Arm.

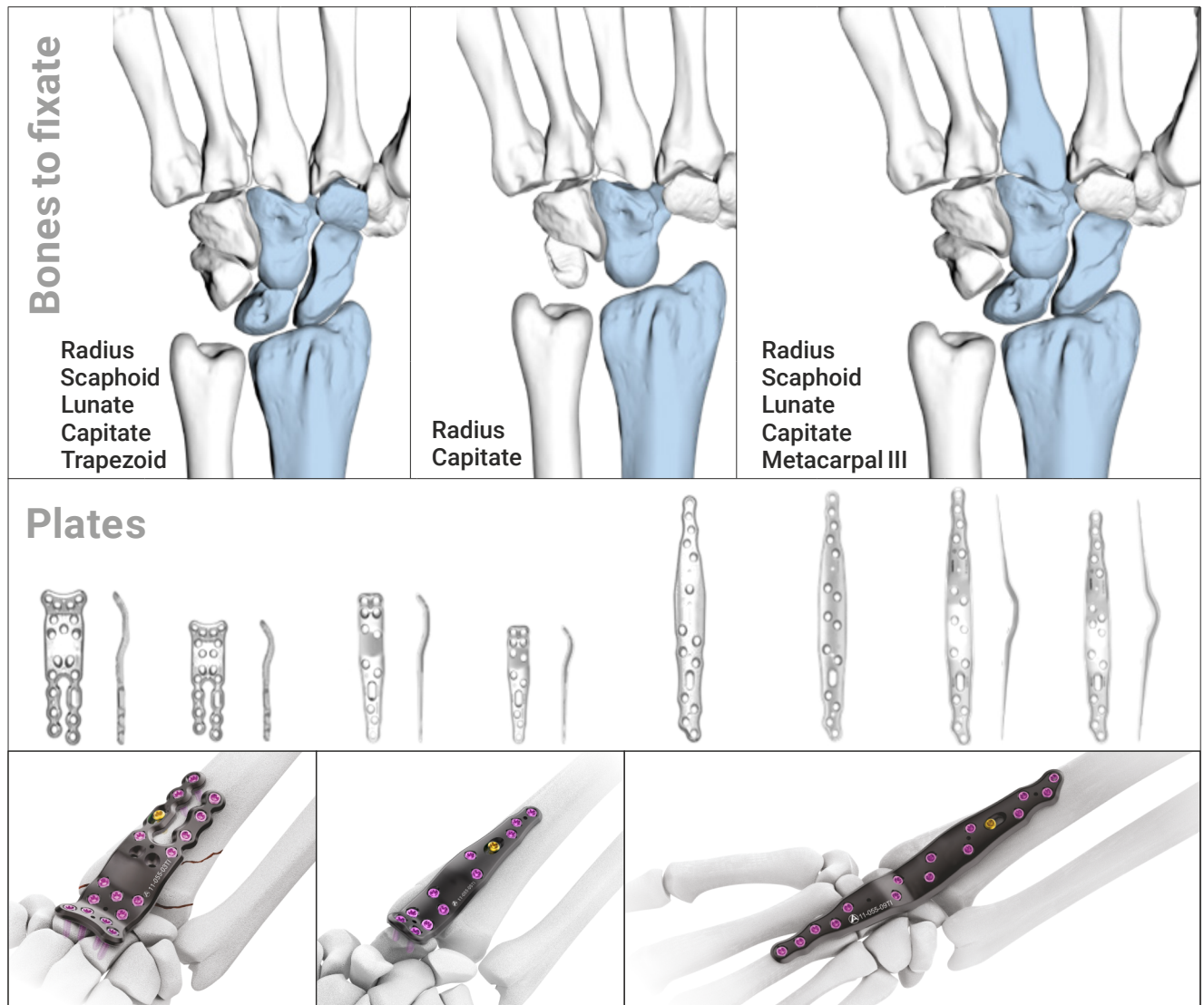
**Step 9:****Final Fixation:**

Repeat all the previous steps to correctly fix the plate and fulfil the requirement.



Treatment Concept

The table below lists typical clinical findings which can be treated with the implants of the AV- Wise-Lock Arthrodesis System



	<ul style="list-style-type: none"> • Osteoarthritis in the radiocarpal and midcarpal joint; physiological movement in the carpometacarpal joint is maintained 	<ul style="list-style-type: none"> • Osteoarthritis following proximal row carpectomy • Osteoarthritis following failed partial arthrodesis (Four Corner Fusion) • Post-traumatic deformity 	<ul style="list-style-type: none"> • Osteoarthritis in the radiocarpal and midcarpal joint; including complete fusion of the carpometacarpal joint • Post-traumatic deformity • Rheumatic diseases • Spastic deformity • Tumor
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AV-WISELOCK™

2.4mm AV-Wiselock Hand and Wrist **Arthrodesis** System

2.4mm AV-Wiselock Hand & Wrist Arthrodesis System offers well-designed multidirectional and angular stable Plates enables stable fixation of the required patient specific arthrodesis of the carpal bones and wrist, respectively.

Indication

Wrist : Fractures, Osteotomies and Arthrodesis of the bones of the wrist:-

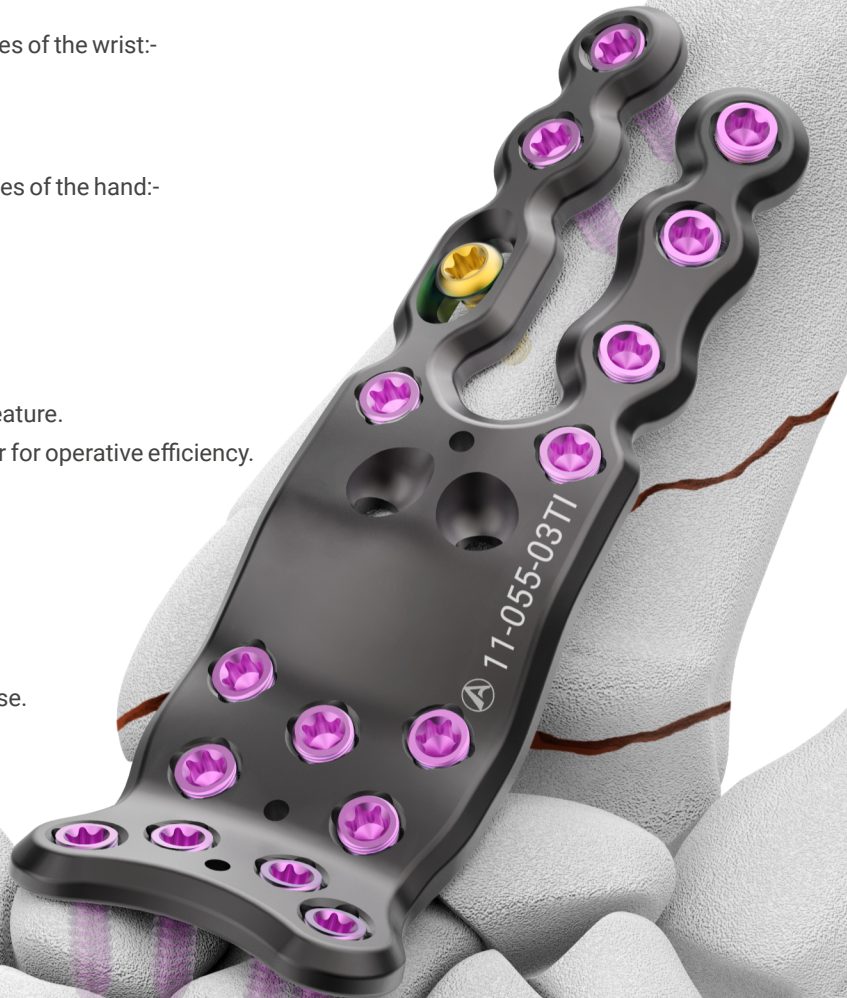
- Fusion plates.
- Arthrodesis of wrist bone.

Hand : Fractures, Osteotomies and Arthrodesis of the bones of the hand:-

- 4CF/STT plates.
- Arthrodeses of carpal bones.

Plate Features

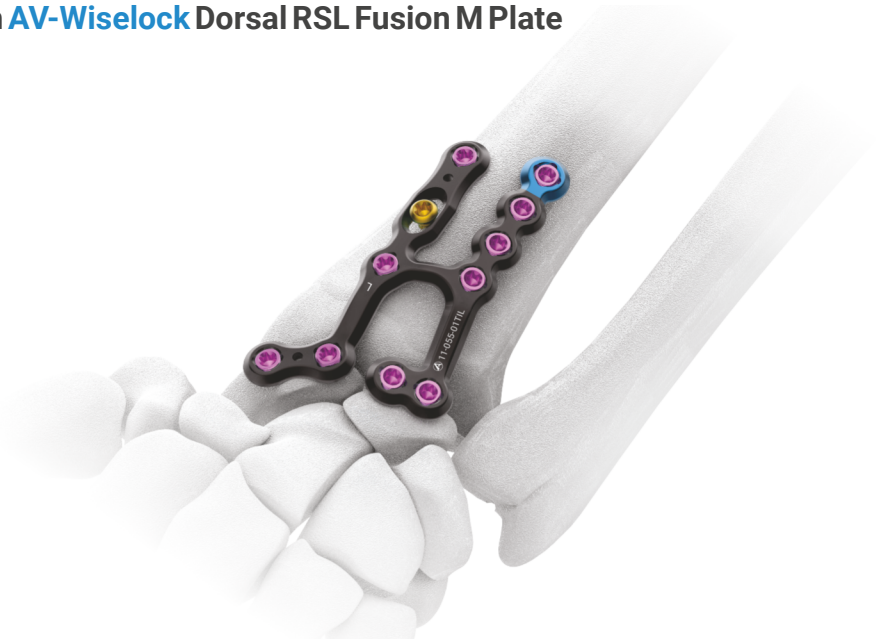
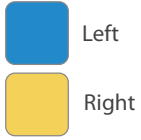
- Multi-angular stability in all directions up to $\pm 15^\circ$
- Minimal screw head protrusion due to internal locking feature.
- Introducing consistency with the 2.4mm screw diameter for operative efficiency.
- AV-Wiselock hole to facilitate axial compression.
- Ergonomic design including round edges and smooth surface while promoting soft tissue protection.
- Pre-contoured plates allowing perfect settlement and fixation on the radiocarpel and midcarpel region.
- Variety of long and short angular bends for operative ease.
- Colour coded self tapping screws (Star-Head) for better understanding of plate anatomy as per the fixation and compression.



Plates Available in

Titanium as per ISO 5832-3 and Stainless Steel as per ISO 5832-1

2.4mm AV-Wiselock Dorsal RSL Fusion M Plate

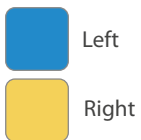


STERILE

Holes	Direction	Titanium	Stainless Steel
11	Left	11-055-01TIL	11-055-01SSL
11	Right	11-055-01TIR	11-055-01SSR

Holes	Direction	Titanium	Stainless Steel
11	Left	11-055-01TIL-S	11-055-01SSL-S
11	Right	11-055-01TIR-S	11-055-01SSR-S

2.4mm AV-Wiselock Volar RSL Fusion M Plate



STERILE

Holes	Direction	Titanium	Stainless Steel
10	Left	11-055-02TIL	11-055-02SSL
10	Right	11-055-02TIR	11-055-02SSR

Holes	Direction	Titanium	Stainless Steel
10	Left	11-055-02TIL-S	11-055-02SSL-S
10	Right	11-055-02TIR-S	11-055-02SSR-S

2.4mm AV-Wiselock Wrist Fusion M Plate



Long bend Short bend



STERILE

Holes	Bend	Titanium	Stainless Steel
19	Long Bend	11-055-03TI	11-055-03SS
18	Short Bend	11-055-04TI	11-055-04SS

Holes	Bend	Titanium	Stainless Steel
19	Long Bend	11-055-03TI-S	11-055-03SS-S
18	Short Bend	11-055-04TI-S	11-055-04SS-S

2.4mm AV-Wiselock Dorsal Wrist Fusion M Plate, Radiocapitate



Long bend Short bend



STERILE

Holes	Bend	Titanium	Stainless Steel
12	Long Bend	11-055-05TI	11-055-05SS
12	Short Bend	11-055-06TI	11-055-06SS

Holes	Bend	Titanium	Stainless Steel
12	Long Bend	11-055-05TI-S	11-055-05SS-S
12	Short Bend	11-055-06TI-S	11-055-06SS-S

2.4mm AV-Wiselock Dorsal Total Wrist Fusion M Plate



Straight Plate Long bend Short bend



STERILE

Holes	Bend	Titanium	Stainless Steel
15	Straight	11-055-07TI	11-055-07SS
16	Straight	11-055-08TI	11-055-08SS
16	Long Bend	11-055-09TI	11-055-09SS
16	Short Bend	11-055-10TI	11-055-10SS

Holes	Bend	Titanium	Stainless Steel
15	Straight	11-055-07TI-S	11-055-07SS-S
16	Straight	11-055-08TI-S	11-055-08SS-S
16	Long Bend	11-055-09TI-S	11-055-09SS-S
16	Short Bend	11-055-10TI-S	11-055-10SS-S

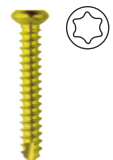
2.4mm Cortical Screw, Self-Tapping, (Star Head)



STERILE

Dia	Length	Titanium	Stainless Steel
Ø2.4	8mm	TI-1144.08	1144.08
Ø2.4	10mm	TI-1144.10	1144.10
Ø2.4	12mm	TI-1144.12	1144.12
Ø2.4	14mm	TI-1144.14	1144.14
Ø2.4	16mm	TI-1144.16	1144.16
Ø2.4	18mm	TI-1144.18	1144.18
Ø2.4	20mm	TI-1144.20	1144.20
Ø2.4	22mm	TI-1144.22	1144.22
Ø2.4	24mm	TI-1144.24	1144.24
Ø2.4	26mm	TI-1144.26	1144.26
Ø2.4	28mm	TI-1144.28	1144.28
Ø2.4	30mm	TI-1144.30	1144.30
Ø2.4	32mm	TI-1144.32	1144.32
Ø2.4	34mm	TI-1144.34	1144.34

Dia	Length	Titanium	Stainless Steel
Ø2.4	8mm	TI-1144.08-S	1144.08-S
Ø2.4	10mm	TI-1144.10-S	1144.10-S
Ø2.4	12mm	TI-1144.12-S	1144.12-S
Ø2.4	14mm	TI-1144.14-S	1144.14-S
Ø2.4	16mm	TI-1144.16-S	1144.16-S
Ø2.4	18mm	TI-1144.18-S	1144.18-S
Ø2.4	20mm	TI-1144.20-S	1144.20-S
Ø2.4	22mm	TI-1144.22-S	1144.22-S
Ø2.4	24mm	TI-1144.24-S	1144.24-S
Ø2.4	26mm	TI-1144.26-S	1144.26-S
Ø2.4	28mm	TI-1144.28-S	1144.28-S
Ø2.4	30mm	TI-1144.30-S	1144.30-S
Ø2.4	32mm	TI-1144.32-S	1144.32-S
Ø2.4	34mm	TI-1144.34-S	1144.34-S



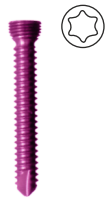
2.4mm Variable Angle Screw, Self-Tapping, (Star Head)



STERILE

Dia	Length	Titanium	Stainless Steel
Ø2.4	8mm	TI-549.008	549.008
Ø2.4	10mm	TI-549.010	549.010
Ø2.4	12mm	TI-549.012	549.012
Ø2.4	14mm	TI-549.014	549.014
Ø2.4	16mm	TI-549.016	549.016
Ø2.4	18mm	TI-549.018	549.018
Ø2.4	20mm	TI-549.020	549.020
Ø2.4	22mm	TI-549.022	549.022
Ø2.4	24mm	TI-549.024	549.024
Ø2.4	26mm	TI-549.026	549.026
Ø2.4	28mm	TI-549.028	549.028
Ø2.4	30mm	TI-549.030	549.030
Ø2.4	32mm	TI-549.032	549.032
Ø2.4	34mm	TI-549.034	549.034

Dia	Length	Titanium	Stainless Steel
Ø2.4	8mm	TI-549.008-S	549.008-S
Ø2.4	10mm	TI-549.010-S	549.010-S
Ø2.4	12mm	TI-549.012-S	549.012-S
Ø2.4	14mm	TI-549.014-S	549.014-S
Ø2.4	16mm	TI-549.016-S	549.016-S
Ø2.4	18mm	TI-549.018-S	549.018-S
Ø2.4	20mm	TI-549.020-S	549.020-S
Ø2.4	22mm	TI-549.022-S	549.022-S
Ø2.4	24mm	TI-549.024-S	549.024-S
Ø2.4	26mm	TI-549.026-S	549.026-S
Ø2.4	28mm	TI-549.028-S	549.028-S
Ø2.4	30mm	TI-549.030-S	549.030-S
Ø2.4	32mm	TI-549.032-S	549.032-S
Ø2.4	34mm	TI-549.034-S	549.034-S



2.4mm Wise-Lock Screw, Self-Tapping, (Star Head)



STERILE

Dia	Length	Titanium	Stainless Steel
Ø2.4	8mm	TI-1145.08	1145.08
Ø2.4	10mm	TI-1145.10	1145.10
Ø2.4	12mm	TI-1145.12	1145.12
Ø2.4	14mm	TI-1145.14	1145.14
Ø2.4	16mm	TI-1145.16	1145.16
Ø2.4	18mm	TI-1145.18	1145.18
Ø2.4	20mm	TI-1145.20	1145.20
Ø2.4	22mm	TI-1145.22	1145.22
Ø2.4	24mm	TI-1145.24	1145.24
Ø2.4	26mm	TI-1145.26	1145.26
Ø2.4	28mm	TI-1145.28	1145.28
Ø2.4	30mm	TI-1145.30	1145.30

Dia	Length	Titanium	Stainless Steel
Ø2.4	8mm	TI-1145.08-S	1145.08-S
Ø2.4	10mm	TI-1145.10-S	1145.10-S
Ø2.4	12mm	TI-1145.12-S	1145.12-S
Ø2.4	14mm	TI-1145.14-S	1145.14-S
Ø2.4	16mm	TI-1145.16-S	1145.16-S
Ø2.4	18mm	TI-1145.18-S	1145.18-S
Ø2.4	20mm	TI-1145.20-S	1145.20-S
Ø2.4	22mm	TI-1145.22-S	1145.22-S
Ø2.4	24mm	TI-1145.24-S	1145.24-S
Ø2.4	26mm	TI-1145.26-S	1145.26-S
Ø2.4	28mm	TI-1145.28-S	1145.28-S
Ø2.4	30mm	TI-1145.30-S	1145.30-S



1312-01 Depth Gauge measuring upto 60mm



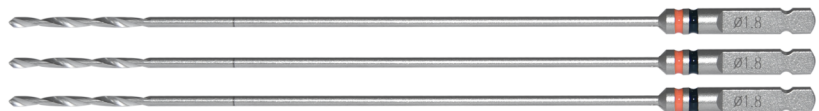
1312-02 T-Handle With Quick Coupling



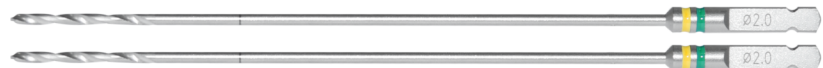
1312-03-15 Retractor, 15mm



1312-04-1.8 Drill Bit with Quick Coupling End, Ø1.8mm x Length 140mm



1312-05-2.0 Drill Bit with Quick Coupling End, Ø2.0mm x Length 140mm



1312-06-2.4 Drill Bit with Quick Coupling End, Ø2.4mm x Length 140mm



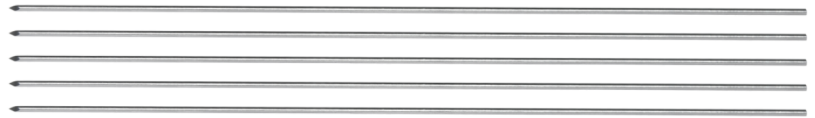
1312-07-2.7

Drill Bit with Quick Coupling End, Ø2.7mm x Length 140mm



1312-08-1.2

Guide Wire, Ø1.2mm x Length 150mm



1312-09-1.2

Guide Wire With Threaded Tip, Ø1.2mm x Thread Length 5mm x Length 150mm



1312-10-2.4

Tap, HA 2.4mm



1312-11-2.7

Tap, HA 2.7mm



1312-13-1.8

Threaded Drill Sleeve, Ø1.8/2.4mm (Double Start Thread)



1312-15 Self-Centering Double Drill Guide Φ 1.8/2.4mm



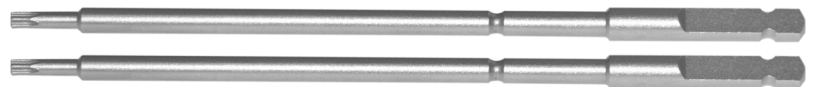
1312-16 Self-Centering Double Drill Guide Φ 2.0/2.7mm



1312-17 Depth Gauge with Protector measuring upto 50mm



1312-18 Star Screwdriver Shaft, T8



1312-21 Torque Limiting Attachment, 0.8Nm



7-019-03 Handle for Torque Limiting Attachment



1312-22-6.5

Retractor, 6.5mm



1312-23

Double Periosteal Elevator, Round



1312-24

Double Periosteal Elevator, Flat



1312-25

Reduction Forcep with Points, Small



1312-26

Reduction Forcep with Points, Large



1312-27

Reduction Forcep with Points, Serrated



1312-28

Bending Forcep



1312-30

Universal Variable Angle Drill Guide, Ø1.8mm



1312-20-2.7

Screw Holding Sleeve for 2.7mm Cortical Screw



1312-20-2.4

Screw Holding Sleeve for 2.4mm Cortical Screw



1312-30-2.4

Screw Holding Sleeve for 2.4mm Wise-lock Screw



1312-22

Quick Coupling Handle



1312-29

Sharp Hook



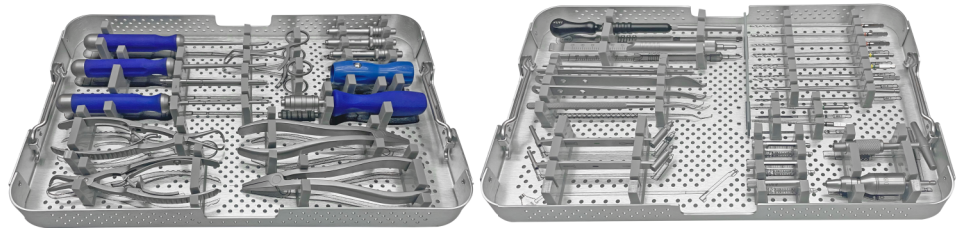
1312-31

Screwdriver Star Head



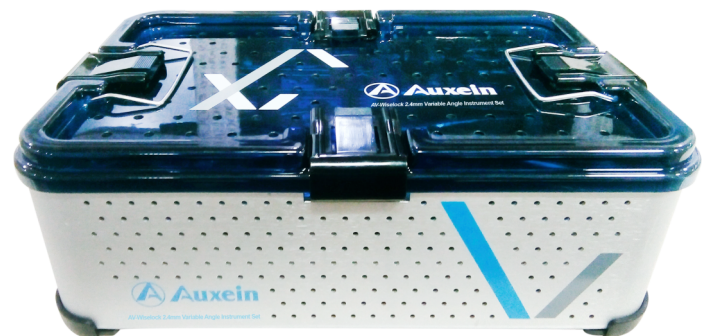
1312-35

Instrument trays for 2.4mm AV-Wislock Distal Radius Instrument Set

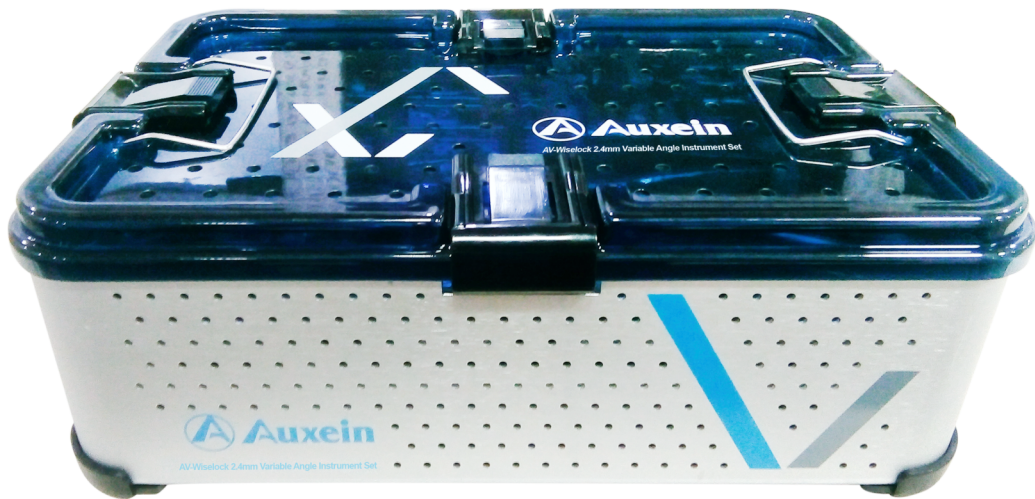
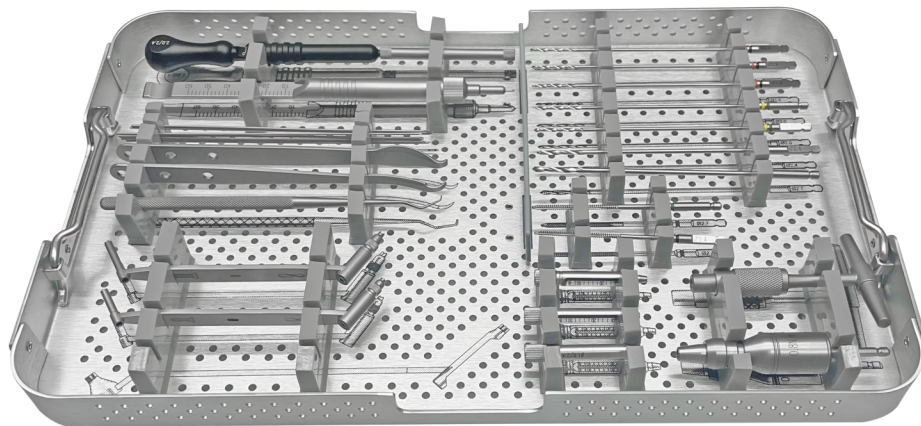
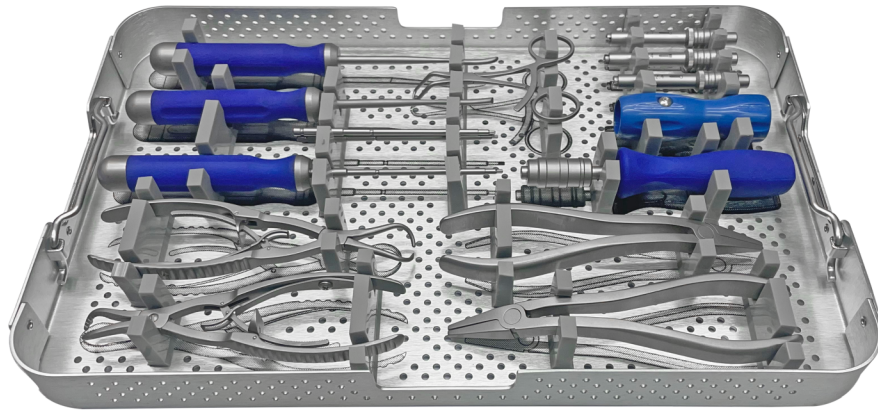


1312-34

Container for 2.4mm AV-Wislock Distal Radius Instrument



1312-000 2.4mm AV-Wiselock Distal Radius Instrument Set



Code	Set Consisting of	Units
1312-01	Depth Gauge measuring upto 60mm	1
1312-02	T-Handle With Quick Coupling	1
1312-03-15	Retractor, 15mm	1
1312-04-1.8	Drill Bit with Quick Coupling End, Ø1.8mm x Length 140mm	3
1312-05-2.0	Drill Bit with Quick Coupling End, Ø2.0mm x Length 140mm	2
1312-06-2.4	Drill Bit with Quick Coupling End, Ø2.4mm x Length 140mm	1
1312-07-2.7	Drill Bit with Quick Coupling End, Ø2.7mm x Length 140mm	1
1312-08-1.2	Guide Wire, Ø1.2mm x Length 150mm	5
1312-09-1.2	Guide Wire With Threaded Tip, Ø1.2mm x Thread Length 5mm x Length 150mm	2
1312-10-2.4	Tap, HA 2.4mm	1
1312-11-2.7	Tap, HA 2.7mm	1
1312-13-1.8	Threaded Drill Sleeve, Ø1.8/2.4mm (Double Start Thread)	3
1312-15	Self-Centering Double Drill Guide Ø1.8/2.4mm	1
1312-16	Self-Centering Double Drill Guide Ø2.0/2.7mm	1
1312-17	Depth Gauge with Protector measuring upto 50mm	1
1312-18	Star Screwdriver Shaft, T8	2
1312-21	Torque Limiting Attachment, 0.8Nm	1
7-019-03	Handle for Torque Limiting Attachment	1
1312-22-6.5	Retractor, 6.5mm	1
1312-23	Double Periosteal Elevator, Round	1
1312-24	Double Periosteal Elevator, Flat	1
1312-25	Reduction Forcep with Points, Small	1
1312-26	Reduction Forcep with Points, Large	1
1312-27	Reduction Forcep with Points, Serrated	1
1312-28	Bending Forcep	2
1312-30	Universal Variable Angle Drill Guide, Ø1.8mm	1
1312-20-2.7	Screw Holding Sleeve for 2.7mm Cortical Screw	1
1312-20-2.4	Screw Holding Sleeve for 2.4mm Cortical Screw	1
1312-30-2.4	Screw Holding Sleeve for 2.4mm Wise-lock Screw	1
1312-22	Quick Coupling Handle	1
1312-29	Sharp Hook	1
1312-31	Screwdriver Star Head	1
1312-35	Instrument trays for 2.4mm AV-Wiselock Distal Radius Instrument Set	2
1312-34	Container for 2.4mm AV-Wiselock Distal Radius Instrument	1
Implant Box		
11-077	Implant Box with cover for 2.4mm AV-Wiselock Hand and Wrist - Arthrodesis System	1



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