Auxein®

Surgical Technique

Wrist Fusion System

www.auxein.com

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

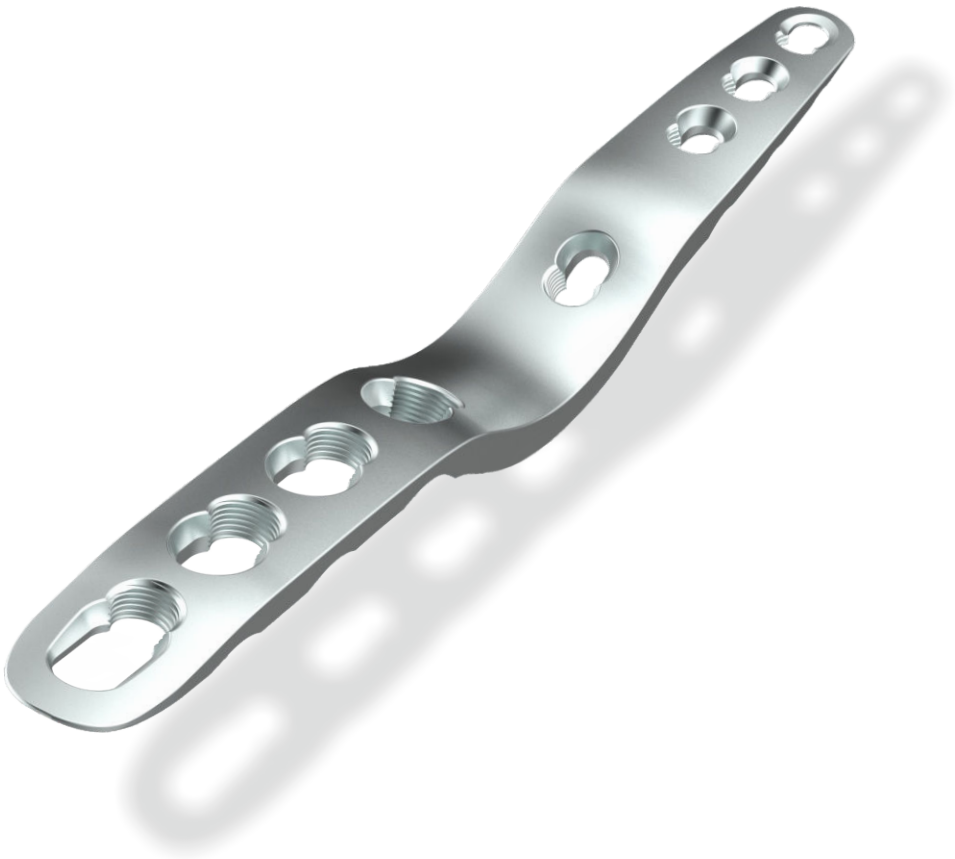
INTRODUCTION:

The **AUXEIN MEDICAL'S** Wrist System consists of variety of Bone plates & fixed angle Bone Screws. This system is a single use implantable device for long term duration (intended for continuous use for more than 30 days) contacting Wrist System and its surrounding tissues.

The Wrist Fusion System was designed for wrist arthrodesis due to deformities associated with degenerative arthritis, brachial plexus palsies, and spastic disorders.

Wrist System includes following plates:

- 3.5mm Wise-Lock Wrist Fusion Plate, Straight Bend
- 3.5mm Wise-Lock Wrist Fusion Plate, Short Bend
- 3.5mm Wise-Lock Wrist Fusion Plate, Standard Bend



INDICATIONS:

Intended uses for all Wrist system plates are given below:

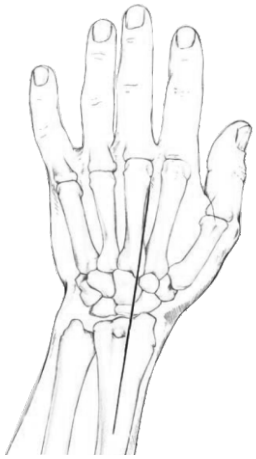
- Posttraumatic arthrosis of the joints of the wrist
- Rheumatoid wrist deformities requiring restoration
- Complex carpal instability
- Postseptic arthritis of the wrist
- Severe unremitting wrist pain related to motion
- Brachial plexus nerve palsies
- Tumor resection
- Spastic deformities

CONTRA INDICATIONS

The physician's education, training and professional judgment must be relied upon to choose the most appropriate device and treatment. Conditions presenting an increased risk of failure include:

1. Any active or suspected latent infection, sepsis or marked local inflammation in or around the surgical area.
2. Severe osteoporosis, insufficient quantity or quality of bone/soft tissue.
3. Post Traumatic arthritis
4. Nonunion, malunion, delayed fibrous, or incomplete union
5. Material sensitivity documented or suspected.
6. Physical interference with other implants during implantation or use.
7. Compromised vascularity, inadequate skin or neurovascular status.
8. Compromised bone stock that cannot provide adequate support and/or fixation of the device due to disease, infection or prior implantation.
9. Patients who are unwilling or incapable of following post-operative care instructions.
10. Other physical, medical or surgical conditions that would preclude the potential benefit of surgery.

PATIENT POSITIONING: Patient is placed in supine position on an operating table. Forearm is rested on hand table in supinated position so that the palm faces downwards.



SKIN INCISION: The extended dorsal approach can be used for wrist fusion. The third compartment is opened completely in line with the EPL tendon in the extensor retinaculum. When opening the tendon sheath, be careful not to cut the tendon. The incision is extended proximally in line with the EPL tendon.

PLATE SELECTION: The selection of the plate is decided on the basis of bone anatomy as mentioned below:

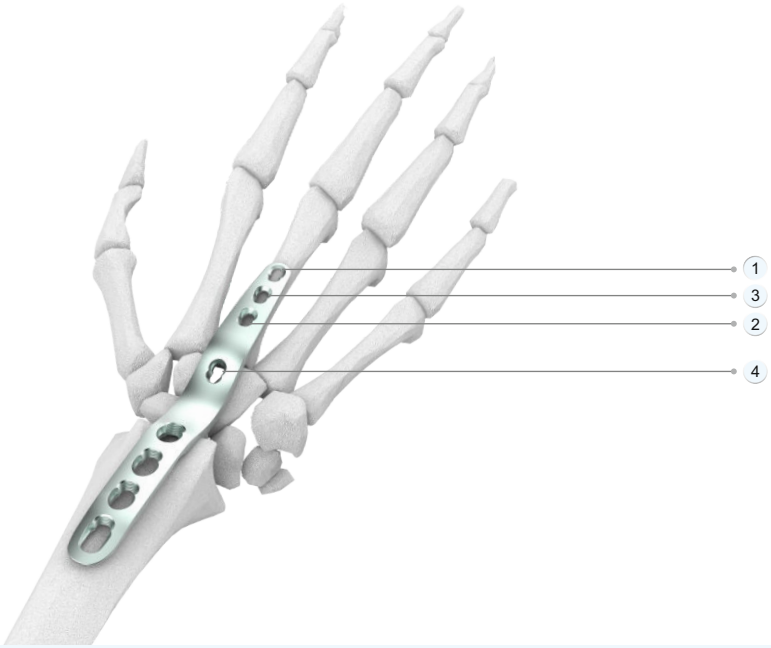
- For average sized individuals having medium to large wrist, the Standard Bend plates are used.

- For individuals with short stature having small wrist or patients with previous proximal row carpectomy, the short bend plates are used.

- For severely deformed wrist joint or unusual bone anatomy, Straight bend plates are used. The bending could be performed on this plate according to the unusual anatomy of the bone.

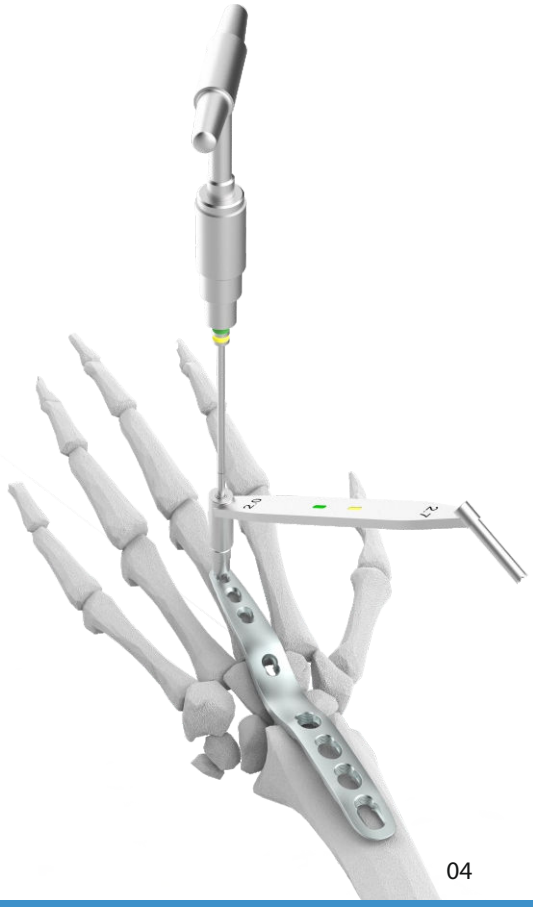
Distal Screw Insertion: The Distal end of the plate accepts 2.7mm Cortical Screw & 2.4mm Cortical Screws in the non-locking portion of the combi hole while the locking portion accepts 2.7mm Wise-Lock Screw. The Surgeon selects the cortical or Wise-Lock Screw for insertion in each hole depending on the type of fracture and the amount of compression required. The technique for Screw insertion is as described below:

Cortical Screw Insertion: Firstly, the plate is fixed from distal end on the third metacarpal bone and later on the radius bone. The adjoining figure shows the sequence of the screw insertion into the plate.

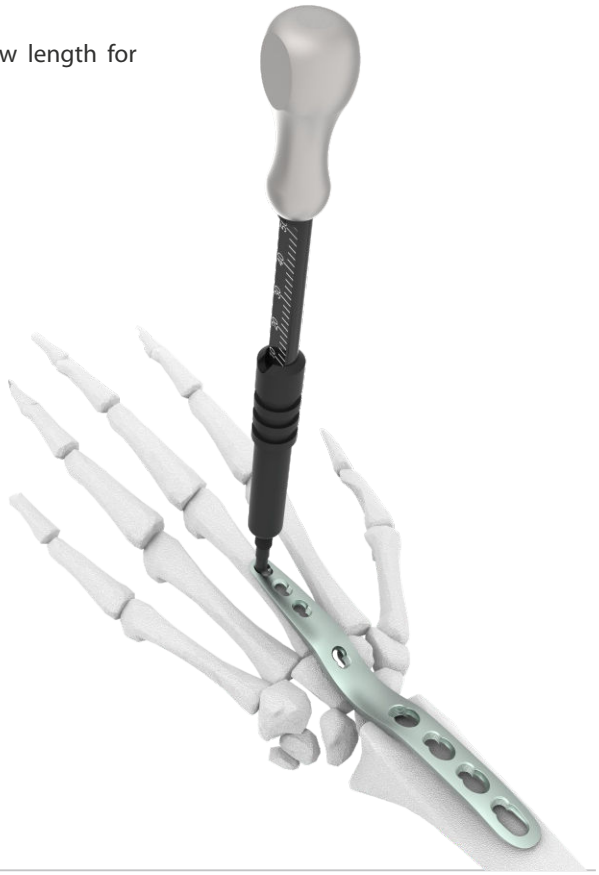


Note: Depending on the surgeon preference or the patient bone anatomy, the screw insertion sequence may vary.

- For insertion of 2.7mm cortical screw, the 2.7mm dill guide (1472-044) is used to guide the 2.0mm drill bit (2100-2.0-110) to drill the hole through bone.

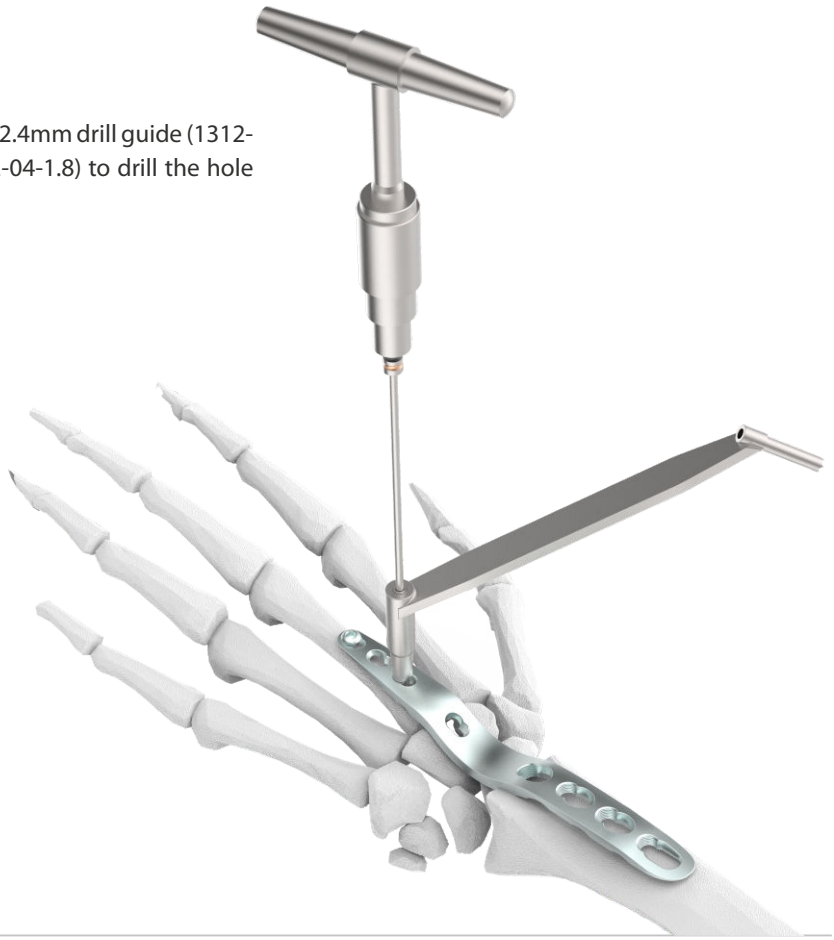


- The depth gauge (3443.05) is used to measure the required screw length for insertion.

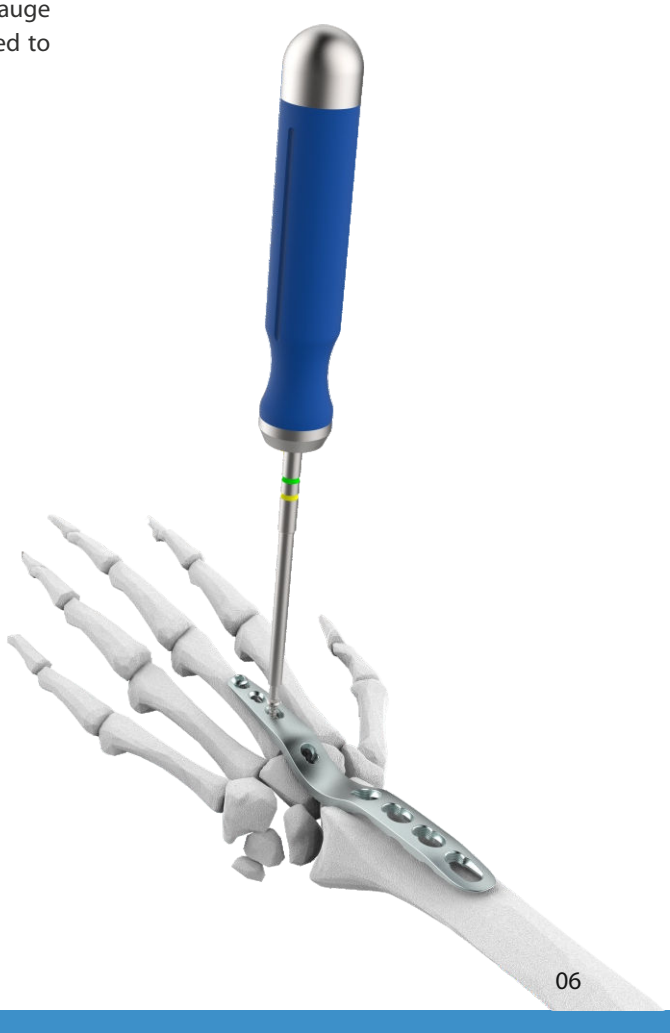


- The 2.5mm Tip Hexagonal screwdriver (3406.03) is used to pick and insert the 2.7mm cortical screw into the predrilled hole.

- Whereas for insertion of 2.4mm cortical screw, 2.4mm drill guide (1312-15) is used to guide the 1.8mm drill bit (1312-04-1.8) to drill the hole through bone.



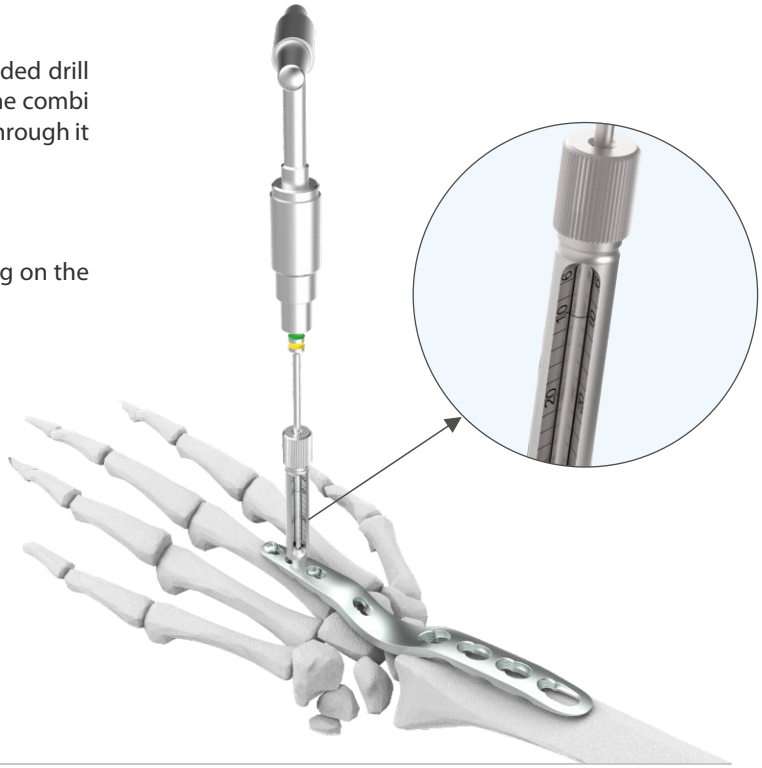
- Finally after measuring the required screw length with depth gauge (3443.05), the 2.0mm tip Hexagonal screwdriver (3406.02) is used to pick and insert the 2.4mm cortical screw in the predrilled hole.



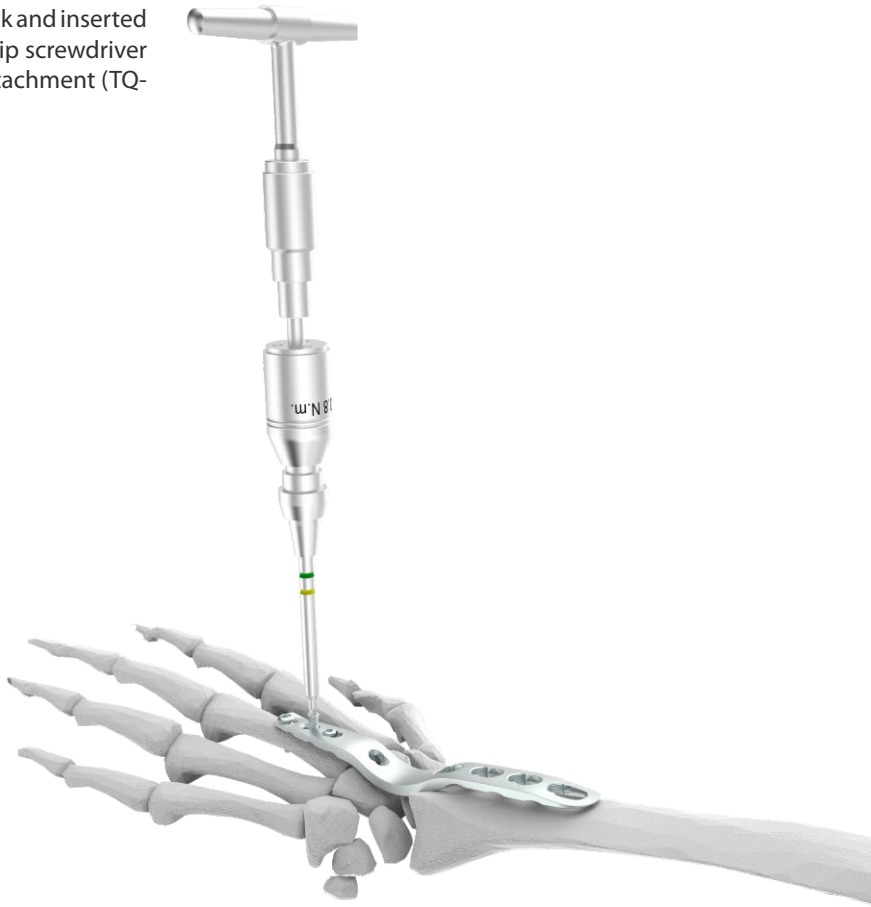
Wise-Lock Insertion: Following described is the technique for insertion of Wise-Lock screws at the distal end of the plate:

- For insertion of 2.7mm Wise-Lock screws, the 2.7 threaded drill guide (TDG-2.7) is seated on the threaded portion of the combi holes and the 2.0 mm drill bit (2100-2.0-110) is passed through it for drilling through the bone.

- The marking on the drill bit coinciding with the marking on the guide directly indicates the required screw length

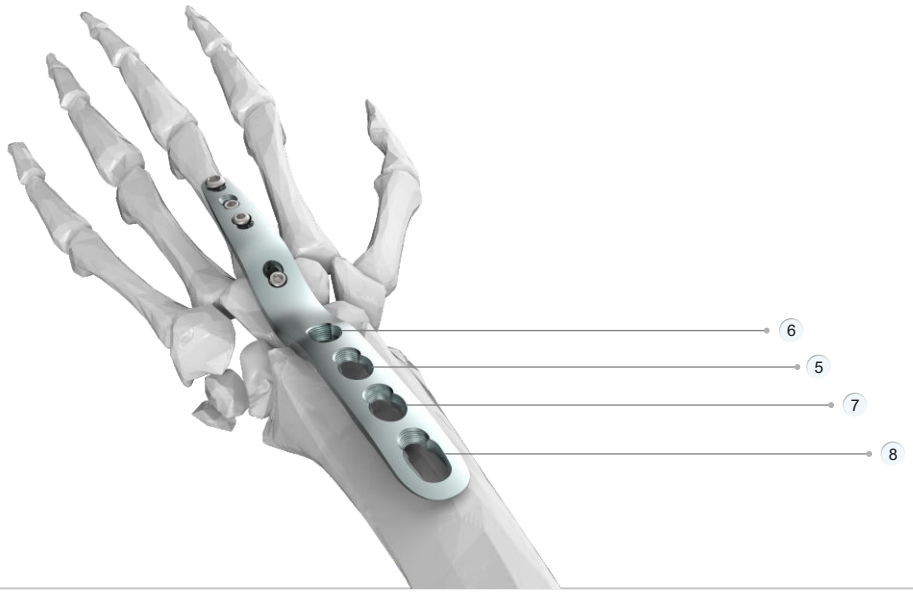


- The 2.7mm Wise-Lock screw of desired length is pick and inserted into the predrilled hole using 2.0mm Hexagonal tip screwdriver shaft (3408.03) with 0.8Nm torque screwdriver attachment (TQ-2.0).



PROXIMAL SCREW INSERTION:

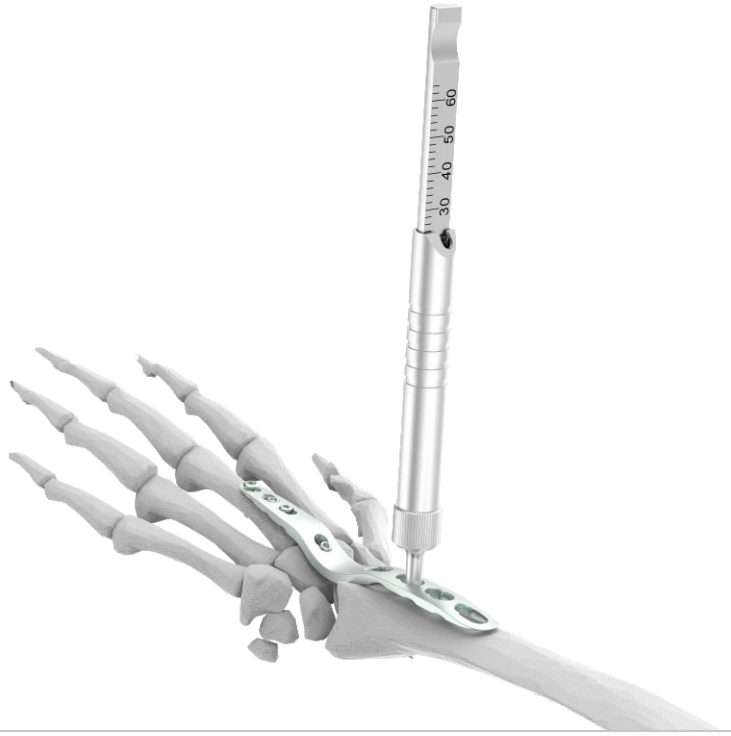
The non-locking portion of the distal end of plate accepts 3.5mm cortical screws while the locking portion accepts 3.5mm Wise-Lock screws. Following figure shows the sequence for screw insertion. Follow the screw insertion technique as described below:



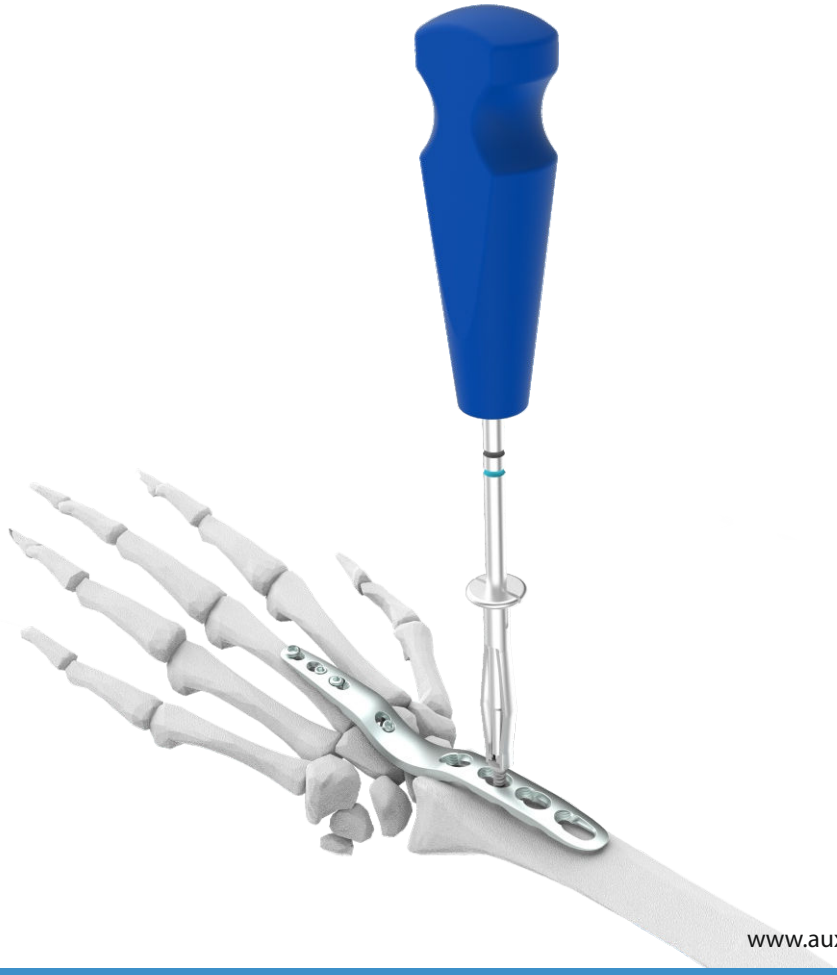
Cortical Screw Insertion:

- The 2.5/3.5mm drill guide (1472-046) is used to guide the 2.5mm drill bit (2100-2.5-112) for drilling the hole across the bone for insertion of 3.5mm cortical screw.

- Now the Depth gauge (3443.37) is used for measuring the required screw length.

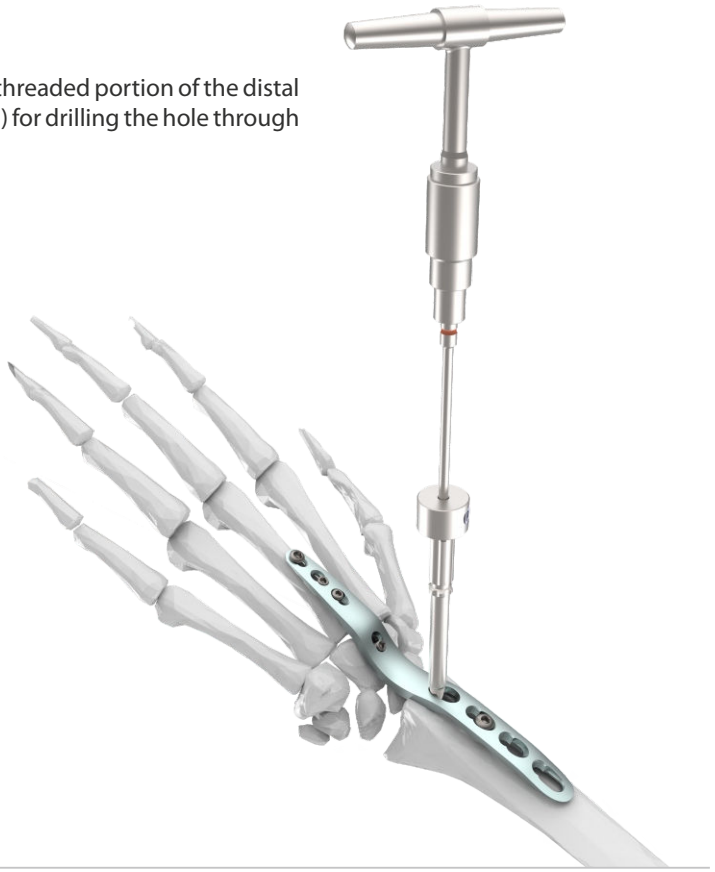


- The 2.5mm Tip Hexagonal Screwdriver (3406.03) is used to pick and insert the 3.5mm cortical screw into the predrilled hole.



Wise-Lock Screw Insertion:

- The 3.5mm threaded drill guide (3441.18) is seated on the threaded portion of the distal plate and is used to guide the 2.8mm drill bit (2103-2.8-165) for drilling the hole through the bone.



- The Depth gauge (3443.37) is used for measuring the required screw length.

- The 3.5mm Wise-Lock screw is inserted into the predrilled hole using 2.5mm tip hexagonal screwdriver shaft (3408.01) with 1.5Nm screwdriver attachment (TQ-2.5).

Wound closure:

The wound is closed with a routine procedure over the plate. The EPL is radially moved, making sure that it doesn't rub against the plate. Finally, a soft, bulky dressing could be applied with the splint to protect the wrist.

3.5mm Wise-Lock Wrist Fusion Plate

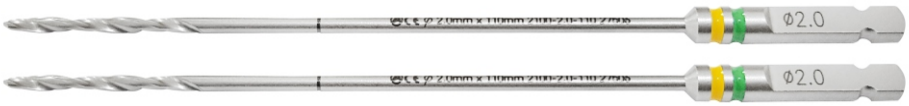
Shape	Holes	Stainless Steel	Titanium
Standard Bend	8	586.000	TI-586.000
Short Bend	8	587.000	TI-587.000
Straight Bend	9	588.000	TI-588.000

3443-37 Depth Gauge measuring upto 80mm for Small Fragment

3445-2.5 T-Handle Screwdriver, Hex 2.5mm, Self-Retaining for Small Fragment

3992-035 Allen Key, Hex 3.0mm, for Small Fragment

2100-2.0-110 Drill Bit with Quick Coupling End, Ø2.0mm x Length 110mm, for Small Fragment



2100-2.5-112 Drill Bit with Quick Coupling End, Ø2.5mm x Length 112mm, for Small Fragment

2100-3.5-112 Drill Bit with Quick Coupling End, Ø3.5mm x Length 112mm, for Small Fragment

2103-2.8-165 Drill Bit Quick Coupling with Stopper, Ø2.8mm x Length 165mm, for Small Fragment

2104-27 Bone Tap Quick Coupling for Wise-Lock Screws, Ø2.7mm, for Small Fragment

2104-02 Bone Tap Quick Coupling for Cortical Screws, Ø3.5mm, for Small Fragment

2104-04 Bone Tap, Quick Coupling for Cancellous Screws, Ø4.0mm, for Small Fragment

3400-01 Countersink for Ø3.5/4.0mm Screws, Quick Coupling, for Small Fragment

3408-01 Hexagonal Screwdriver Shaft - 2.5mm Tip, Quick Coupling, for Small Fragment

3408-03 Hexagonal Screwdriver Shaft - 2.0mm Tip, Quick Coupling, for Small Fragment

2186-2.5 HSS Drill Bit, Ø2.5mm , for Small Fragment

2106-1.2 Guide Sleeve for Ø1.2mm K. Wires, for Small Fragment

3443-05 Depth Gauge with Protector measuring upto 50mm for Small Fragment

3443-39 Trephine for Small Fragment

BT-SF-06 Bending Template, Small, for Small Fragment

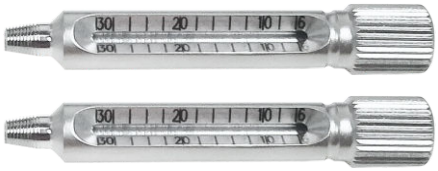
BT-SF-08 Bending Template, Medium, for Small Fragment

BT-SF-10 Bending Template, Large, for Small Fragment

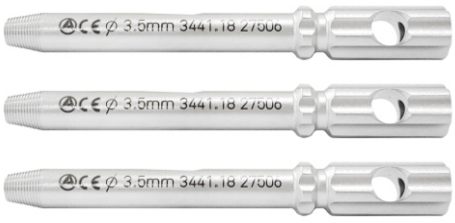
3402-000 T-Handle with Quick Coupling for Small Fragment

1472-054 Quick Coupling Shaft

TDG-2.7 Threaded Drill Sleeve for Drill Bit Ø2.0mm - Small Fragment



3441-18 Threaded Drill Sleeve, for Drill Bit Ø2.8mm - Small Fragmer



3420-01 Drill Sleeve Insert Ø3.5/2.5mm for Small Fragment

1472-036 Drill Guide 2.0mm for Small Fragment

1472-044 Double Drill Guide Ø2.0/2.7mm for Smal

1472-046 Self-Centering Double Drill Guide, Ø2.5/3.5mm, for Small Fragment

3441-16 Drill Guide for Neutral and Loaded Positic

1472-066 Hohmann Retractor, 6.5mm, for Small Fragment

1472-068 Hohmann Retractor, 8.5mm, for Small Fragment

2146-018 Hohmann Retractor, 15.5mm, for Small Fragment

2149-1012 Periosteal Elevator, Straight, 12mm, for Small Fragment

3406-02 Hexagonal Screwdriver - 2.0mm Tip for Small Fragment

3406-02S Screw Holding Sleeve for 2.0mm Tip Screwdriver, for Small Fragment

3406-03 Hexagonal Screwdriver - 2.5mm Tip, for Small Fragment

3406-03S Screw Holding Sleeve for 2.5mm Tip Screwdriver, for Small Fragment

3409-01L Bending Iron, Left

3409-01R Bending Iron, Right

2107-1180 Reduction Forcep, Pointed, Ratchet Lock, 180mm, for Small Fragment

2106-1160 Reduction Forcep, Serrated Jaws, Speed Lock, 160mm, for Small Fragment

2106-190 Self-Centering Bone Holding Forcep, Speed Lock, 190mm, for Small Fragment

2150-1006 Periosteal Elevator with Silicon Handle, Curved, 6mm, for Small Fragment

TQ-2.0 Torque Limiting Attachment, 0.8Nm, for Small Fragment

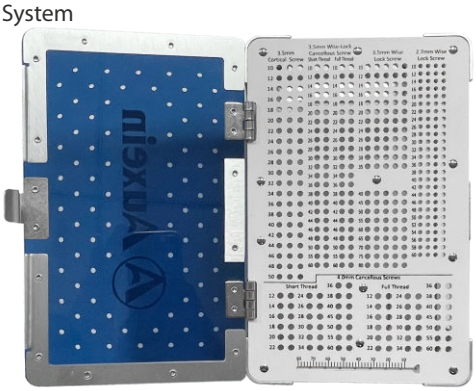
TQ-2.5 Torque Limiting Attachment, 1.5Nm, for Small Fragment

1472-064 Torque Screwdriver Handle

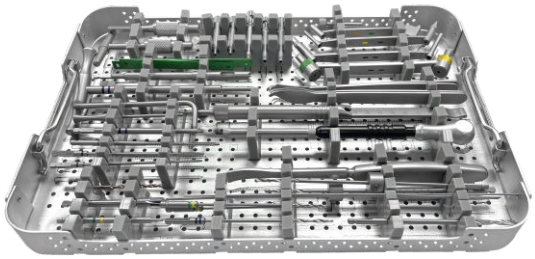
GW-1.2-230 Guide Wire with Threaded Trocar Tip, Ø1.2mm x Thread Length 10mm x Length 230mm

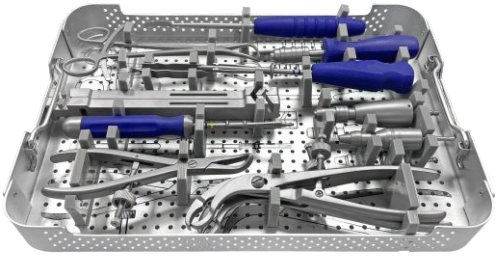
3415-000 Screw Holding Forcep

ST-007NW Screw Caddy for 3.5mm Wise-Lock Small Fragment System

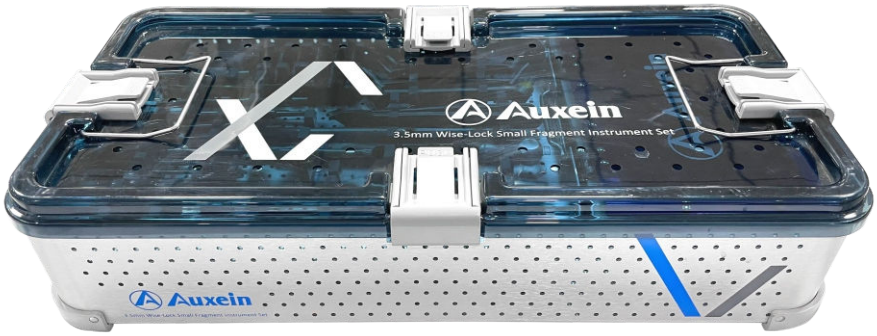


7-050-03 Instrument Trays for 3.5mm Wise-Lock Small Fragment Instrument Set





IC-2310-WL Container for 3.5mm Wise-Lock Small Fragment Instrument Set



2302-000 Small Fragment Wise-Lock Instrument Set

2302-000 Small Fragment Wise-Lock Instrument Set

Codes	Set Consisting of:	Units
3443-37	Depth Gauge measuring upto 80mm for Small Fragment	1
3445-2.5	T-Handle Screwdriver, Hex 2.5mm, Self-Retaining for Small Fragment	1
3992-035	Allen Key, Hex 3.0mm, for Small Fragment	1
2100-2.0-110	Drill Bit with Quick Coupling End, Ø2.0mm x Length 110mm, for Small Fragment	2
2100-2.5-112	Drill Bit with Quick Coupling End, Ø2.5mm x Length 112mm, for Small Fragment	1
2100-3.5-112	Drill Bit with Quick Coupling End, Ø3.5mm x Length 112mm, for Small Fragment	1
2103-2.8-165	Drill Bit Quick Coupling with Stopper, Ø2.8mm x Length 165mm, for Small Fragment	2
2104-27	Bone Tap Quick Coupling for Wise-Lock Screws, Ø2.7mm, for Small Fragment	1
2104-02	Bone Tap Quick Coupling for Cortical Screws, Ø3.5mm, for Small Fragment	1
2104-04	Bone Tap, Quick Coupling for Cancellous Screws, Ø4.0mm, for Small Fragment	1
3400-01	Countersink for Ø3.5/4.0mm Screws, Quick Coupling, for Small Fragment	1
3408-01	Hexagonal Screwdriver Shaft - 2.5mm Tip, Quick Coupling, for Small Fragment	1
3408-03	Hexagonal Screwdriver Shaft - 2.0mm Tip, Quick Coupling, for Small Fragment	1
2186-2.5	HSS Drill Bit, Ø2.5mm , for Small Fragment	1
2106-1.2	Guide Sleeve for Ø1.2mm K. Wires, , for Small Fragment	1
3443-05	Depth Gauge with Protector measuring upto 50mm for Small Fragment	1
3443-39	Trephine for Small Fragment	1
BT-SF-06	Bending Template, Small, for Small Fragment	1
BT-SF-08	Bending Template, Medium, for Small Fragment	1
BT-SF-10	Bending Template, Large, for Small Fragment	1
3402-000	T-Handle with Quick Coupling for Small Fragment	1
1472-054	Quick Coupling Shaft	1
TDG-2.7	Threaded Drill Sleeve for Drill Bit Ø2.0mm - Small Fragment	2
3441-18	Threaded Drill Sleeve, for Drill Bit Ø2.8mm - Small Fragment	3
3420-01	Drill Sleeve Insert Ø3.5/2.5mm for Small Fragment	1
1472-036	Drill Guide 2.0mm for Small Fragment	1
1472-044	Double Drill Guide Ø2.0/2.7mm for Small Fragment	1
1472-046	Self-Centering Double Drill Guide, Ø2.5/3.5mm, for Small Fragment	1
3441-16	Drill Guide for Neutral and Loaded Position Ø3.5mm, for Small Fragment	1
1472-066	Hohmann Retractor, 6.5mm, for Small Fragment	1
1472-068	Hohmann Retractor, 8.5mm, for Small Fragment	1
2146-018	Hohmann Retractor, 15.5mm, for Small Fragment	2
2149-1012	Periosteal Elevator, Straight, 12mm, for Small Fragment	1
3406-02	Hexagonal Screwdriver - 2.0mm Tip for Small Fragment	1
3406-02S	Screw Holding Sleeve for 2.0mm Tip Screwdriver, for Small Fragment	1
3406-03	Hexagonal Screwdriver - 2.5mm Tip, for Small Fragment	1
3406-03S	Screw Holding Sleeve for 2.5mm Tip Screwdriver, for Small Fragment	1
3409-01L	Bending Iron, Left	1
3409-01R	Bending Iron, Right	1
2107-1180	Reduction Forcep, Pointed, Ratchet Lock, 180mm, for Small Fragment	1
2106-1160	Reduction Forcep, Serrated Jaws, Speed Lock, 160mm, for Small Fragment	1

Codes	Set Consisting of:	Units
2106-190	Self-Centering Bone Holding Forcep, Speed Lock, 190mm, for Small Fragment	2
2150-1006	Periosteal Elevator with Silicon Handle, Curved, 6mm, for Small Fragment	1
TQ-2.0	Torque Limiting Attachment, 0.8Nm, for Small Fragment	1
TQ-2.5	Torque Limiting Attachment, 1.5Nm, for Small Fragment	1
1472-064	Torque Screwdriver Handle	1
GW-1.2-230	Guide Wire with Threaded Trocar Tip, Ø1.2mm x Thread Length 10mm x Length 230mm	3
3415-000	Screw Holding Forcep	1
ST-007NW	Screw Caddy for 3.5mm Wise-Lock Small Fragment System	1
7-050-03	Instrument Trays for 3.5mm Wise-Lock Small Fragment Instrument Set	2
IC-2310-WL	Container for 3.5mm Wise-Lock Small Fragment Instrument Set	1

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