Auxein

Surgical Technique

Clavicle Plate

www.auxein.com

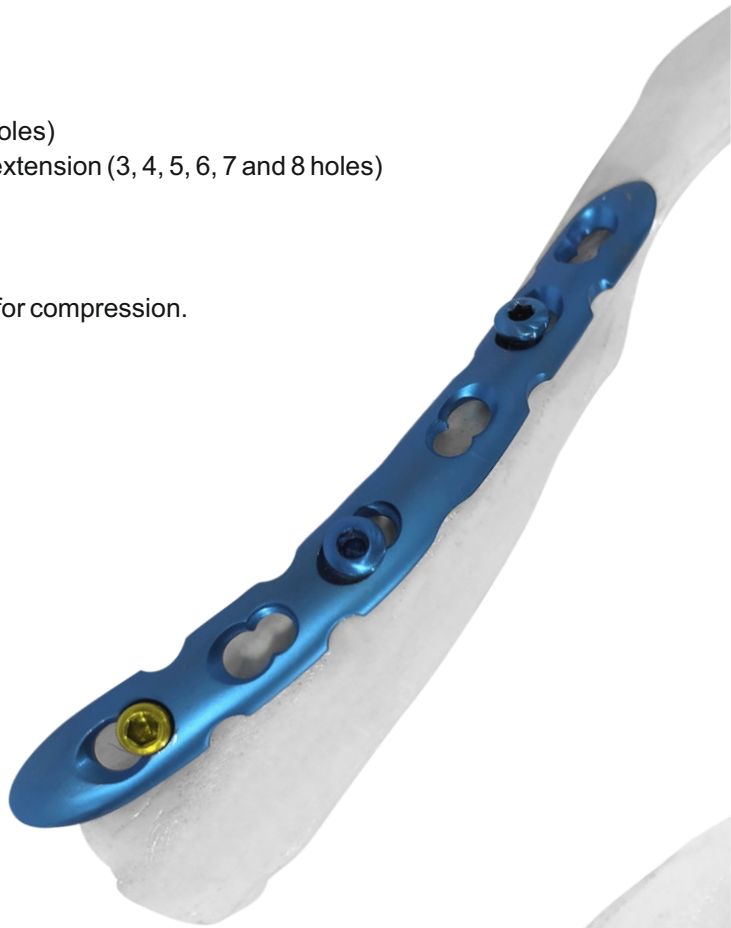
about us

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

3.5mm Wise-Lock Superior Anterior Clavicle Plates.

The 3.5mm Wise-lock Clavicle Plates
combine locking screw technology with
conven-tional plating techniques and include the following:
3.5mm Wise-lock Superior Anterior Clavicle Plates (6, 7 and 8 holes)
3.5mm Wise-lock Superior Anterior Clavicle Plates with lateral extension (3, 4, 5, 6, 7 and 8 holes)
Plates feature Combi holes that allow
fixation with wise-lock screws in the
threaded section for angular stability, and
cortical screws in the dynamic compression unit (DCU) section for compression.



Features

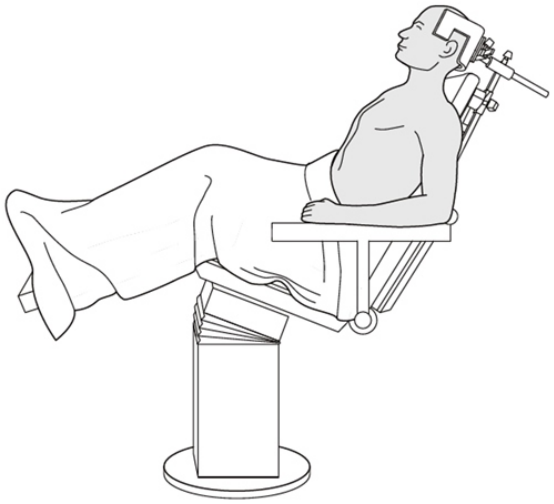
– Precontoured plate for anatomical shape
– Left and right plates
– Notches in the plate allow additional plate contouring
– Limited-contact shaft profile
– Tapered tip for submuscular plate insertion
– Available sterile-packed

Indications

The 3.5 mm Wise-Lock Clavicle Plate System is indicated for fixation of fractures, malunions, nonunions and osteotomies of the clavicle.

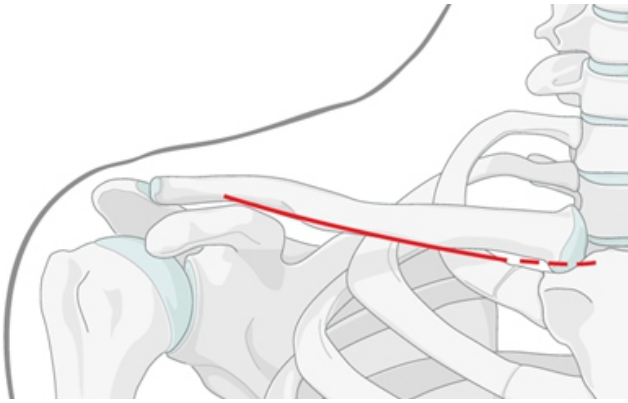
Position patient

A beach-chair or supine position on a radiolucent operating table is recommended to provide appropriate access to the clavicle. AP and lordotic visualization of the clavicle with fluoroscopy is recommended. A small roll or folded towel placed between the scapulae allows retraction of the shoulders and assists with reduction. The head of the patient should be turned away from the operative side and may be supported with a head rest.



Approach

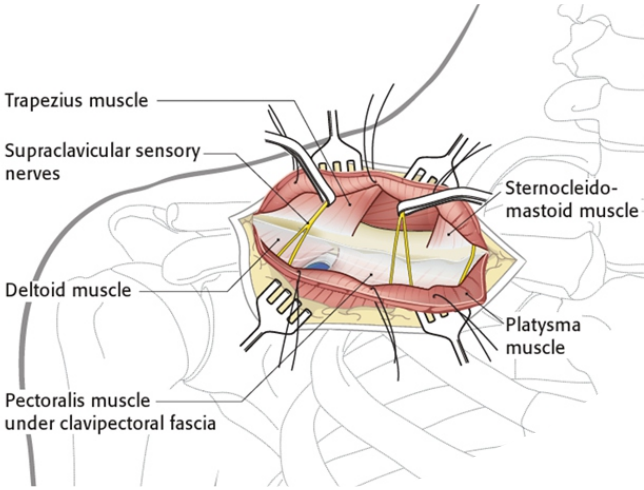
The horizontal incision is placed over the superior or inferior clavicle, depending on the stabilization method. The medial, intermediate, and lateral supraclavicular nerves travel deep to the platysma then typically pierce this muscle and the superficial fascia at the level of the clavicle. Subcuta - neous dissection is performed carefully as it may permit the identification of the perforating supraclavicular sensory nerves. Subsequent division of the platysma is also performed carefully as the supraclavicular nerves may still be deep to the platysma depending on the cephalad level of the dissection. Division of the platysma will expose the clavicle - periosteum at the deltotrapezial fascia and the pectoralis origin.



Do not strip any comminuted fragments.

Reduce

After fracture exposure, distract the two main fragments and restore the length of the clavicle. If the bone ends are angled or oblique, reduction with a pointed or serrated reduction forceps is recommended. Normal length, axis angulation and rotation should be restored. Any large comminuted fragments should also be reduced and temporarily held with small pointed bone clamps or K-wires. Plan temporary fixation to not interfere with placement of definitive fixation.



K-wires can be placed through the distal end of the plate to assist with temporary maintenance of the reduction, and for plate placement.

Additional options for maintaining the reduction include:
- Independent lag screws
- Lag screws through the plate

Note: To estimate the amount of clavicular length to restore, clinically measure the distance between the acromioclavicular joint and the sternoclavicular joint on the contralateral side.

Determine plate length and bend plate

Select a plate length appropriate for the fracture.
Due to varying patient anatomy, the plate may not be perfectly anatomical and slight plate bending may be necessary. Using bending irons, contour the plate as needed. For an optimum fit, the plate can be bent at each notch in the plane of the shaft.

Note: The medial end of the plate should be twisted anteriorly to avoid disruption of the origin of the sternocleidomastoid muscle.

Insert plate

Position the plate on the reduced bone, and attach it temporarily with the plate holding forceps, push / pull reduction device or a 3.5 mm cortical screw. After plate insertion, check alignment of the bone using fluoroscopy.

Note: This Wise-lock plate is precontoured to fit the clavicle. If the plate contour is changed, it is important to check the position of the screws in relation to the joint, using screw placement verification.

Verify screw placement
Since the direction of the Wise-Lock screw depends on the contour of the plate, final screw position may be verified with K-wires before insertion. This becomes important when the plate has been manually contoured, applied near the acromioclavicular joint, or for unusual anatomy.

Verify K-wire placement under image intensification to determine if final screw placement will be acceptable.

Important: The K-wire position represents the final position of the Wise-Lock screw. Confirm that the K-wire does not enter the joint.

Insert screws

Determine the combination of screws to be used for fixation. If a combination of Wise-lock and cortical screws will be used, cortical screws should be inserted first to ensure that the plate has appropriate bone contact.

Note: To secure the plate to the clavicle prior to Wise-lock screw insertion, it is recommended to pull the plate to the bone using a cortical screw.

It is necessary to avoid overpenetration of the inferior clavicle, due to the close proximity of the subclavian artery and brachial plexus.

Fixation with 3.5 mm cortical screw
Use the 2.5 mm drill bit through the 3.5 mm drill guide to predrill the bone. For the neutral position, press the drill guide down in the nonthreaded end of the hole. To obtain compression, place the drill guide at the end of the nonthreaded hole away from the fracture (do not apply downward pressure on the spring-loaded tip).

Measure for screw length using the depth gauge.
Select and insert the appropriate length 3.5 mm cortical screw using a hexagonal screwdriver.

Wise-lock screw insertion

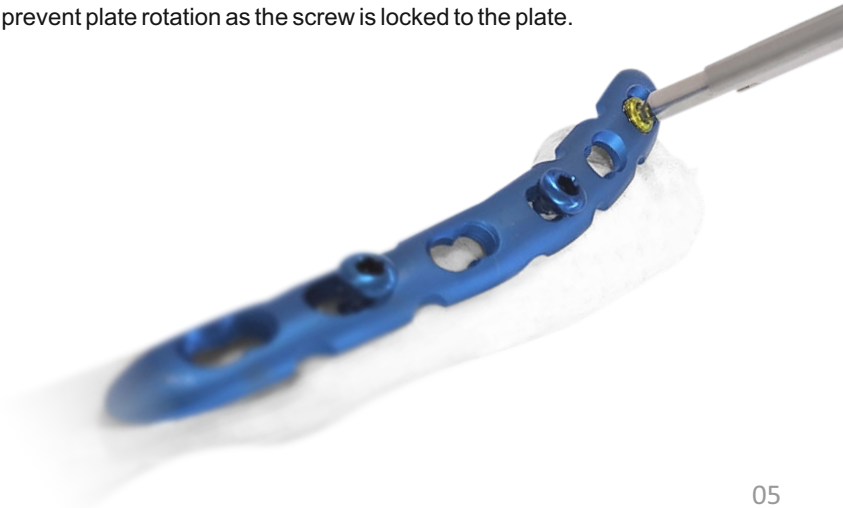
Notes:
The direction of the Wise-Lock screws is predetermined based on normal anatomy. If manual contouring is necessary, verify new screw trajectories using the K-wire placement. The use of image intensification is recommended.

If a Wise-Lock screw will be used as the first screw, be sure the fracture is reduced and the plate is held securely to the bone. This prevents plate rotation as the screw is locked to the plate.

Fixation with 3.5 mm Wise-Lock screw

Insert the 2.8 mm threaded drill guide into a 3.5 mm Wise-Lock hole until fully seated. Use the 2.8 mm drill bit to drill to the desired depth. Remove the 2.8 mm threaded drill guide. Use the depth gauge to determine screw length.

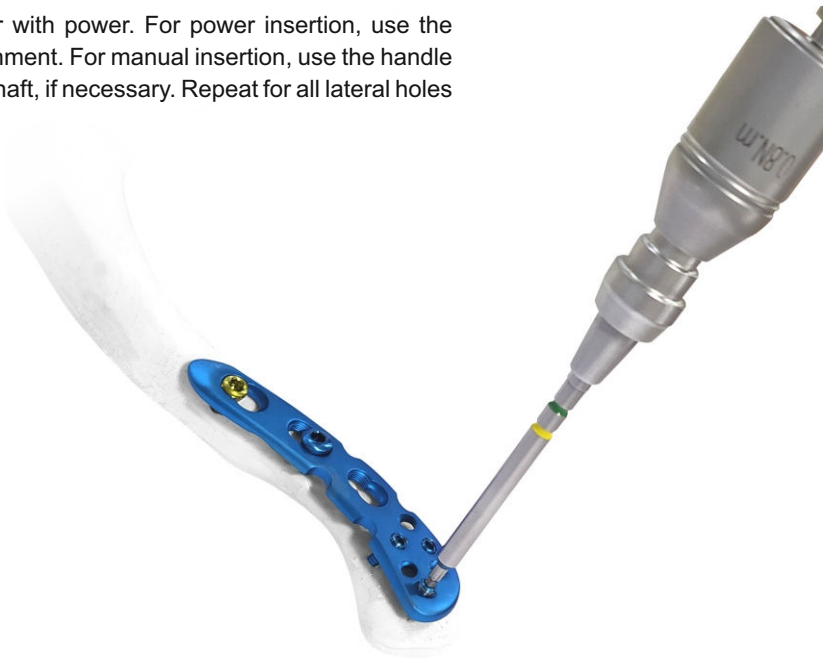
Insert the Wise-Lock screw under power, using the 1.5 Nm torque limiting attachment and the screwdriver shaft, or insert it manually, using the screwdriver. Hold the plate securely on the bone to prevent plate rotation as the screw is locked to the plate.



Fixation with 2.7 mm Wise-Lock screws - lateral

Screw the 2.0 mm threaded drill guide into a 2.7 mm Wise-Lock hole until fully seated. Use the 2.0 mm drill bit to drill to the desired depth. Remove the 2.0 mm threaded drill guide. Use the depth gauge to determine screw length..

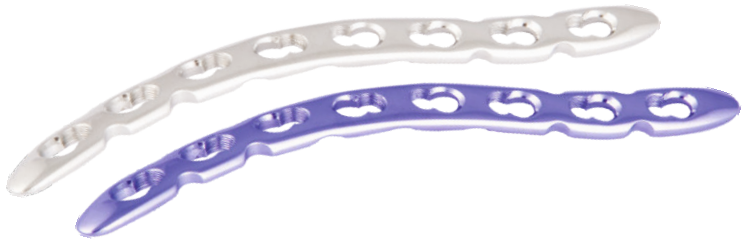
The 2.7 mm Wise-Lock screw can be inserted manually or with power. For power insertion, use the screwdriver shaft attached to the 0.8Nm torque limiting attachment. For manual insertion, use the handle with quick coupling. Use the holding sleeve for screwdriver shaft, if necessary. Repeat for all lateral holes to be used



Confirm reduction and fixation

Assess the final reduction and fixation, by both direct visualiza-tion and image intensification. Confirm full range of motion and stability of the fixation with the shoulder. AP and lordotic fluoroscopic visualization should confirm reduction and appropriate p ositioning of the plate and screws.

3.5mm Wise-Lock Superior Anterior Clavicle Plate



	Left Direction		Right Direction	
Holes	Stainless Steel	Titanium	Stainless Steel	Titanium
6	526.006L	TI-526.006L	526.006R	TI-526.006R
7	526.007L	TI-526.007L	526.007R	TI-526.007R
8	526.008L	TI-526.008L	526.008R	TI-526.008R

2.7/3.5mm Wise-Lock Superior Anterior Clavicle Plate with Lateral Extension

	Left Direction		Right Direction	
Holes	Stainless Steel	Titanium	Stainless Steel	Titanium
3	527.003L	TI-527.003L	527.003R	TI-527.003R
4	527.004L	TI-527.004L	527.004R	TI-527.004R
5	527.005L	TI-527.005L	527.005R	TI-527.005R
6	527.006L	TI-527.006L	527.006R	TI-527.006R
7	527.007L	TI-527.007L	527.007R	TI-527.007R
8	527.008L	TI-527.008L	527.008R	TI-527.008R

3443-37 Depth Gauge, measuring range upto 60mm

3445-2.5 Screw Driver, Hex 2.5mm, Self-Retaining (for Screw Removal)

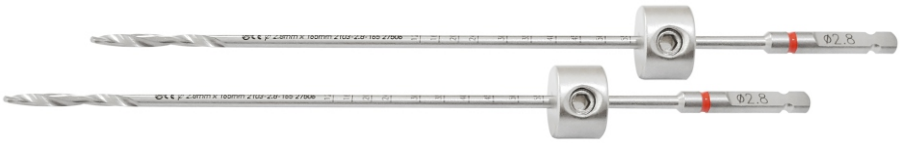
3992-035 Allen Key for Dill Bit Stopper Ø3.0mm

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

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

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

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



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

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

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

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

3408-01 Hexagonal Screw Driver Shaft - 2.5mm Tip, Quick Coupling

3408-03 Hexagonal Screw Driver Shaft - 2.0mm Tip, Quick Coupling

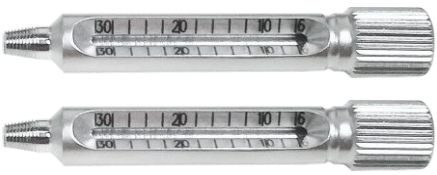
2186-2.5 HSS Drill Bit, Ø2.5, Metal

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

3443-05 Depth Gauge, measuring range upto 50mm, for Ø2.4mm/2.7mm Screws

3443-39 Trephine

BT-SF-06 Bending Template, Small

BT-SF-08	Bending Template, Medium	
BT-SF-10	Bending Template, Large	
3402-000	T-Handle with Quick Coupling	
1472-054	Quick Coupling Shaft	
TDG-2.7	Threaded Drill Guide, Ø2.7mm (For Drill Bit 2.0mm)	
3441-18	Threaded Drill Guide, Ø3.5mm (For Drill Bit 2.8mm)	

3420-01 Drill Sleeve Insert, Ø3.5/2.5mm

1472-036 Drill Guide 2.0mm

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

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

3441-16 Drill Guide for Neutral and Loaded Position, Ø3.5mm

1472-066 Hohmann Retractor, 6.5mm

1472-068 Hohmann Retractor, 8.5mm

2146-018 Hohmann Retractor, 15.5mm

2149-1012 Periosteal Elevator, Straight, 12mm

3406-02 Hexagonal Screw Driver-2.0mm Tip

3406-02S Screw Holding sleeve for 2.0mm Tip Screwdriver

3406-03 Hexagonal Screw Driver-2.5mm Tip

3406-03S Screw Holding sleeve for 2.5mm Tip Screwdriver

3409-01L Small Bending Iron, Left

3409-01R Small Bending Iron, Right

2107-1180 Reduction Forcep, Pointed, Ratchet Lock, 180mm

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

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

2150-1006S Periosteal Elevator with Silicon Handle, Curved, 6mm

TQ-2.0 Torque Limiting Attachment, 0.8Nm

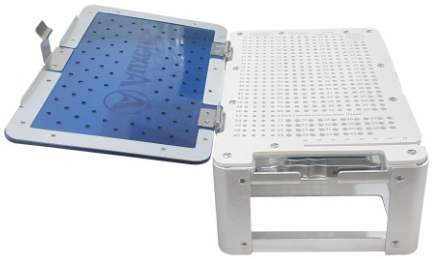
TQ-2.5 Torque Limiting Attachment, 1.5Nm

1472-064 Toque Screw Driver Handle

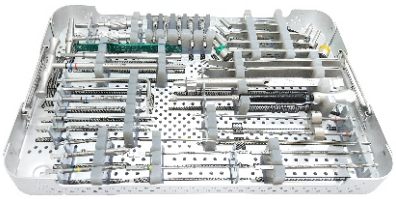
GW-1.2-230 Guide Wire with Threaded Trocar Tip, Ø1.2mm x Thread Length 10mm x Length 230mm

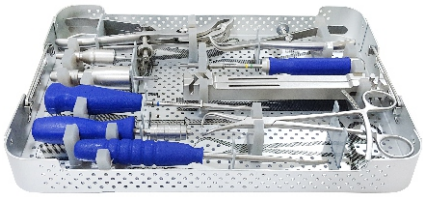
3415-000 Screw Hoding Forcep For 3.5mm Wise-Lock Small Fragment System

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



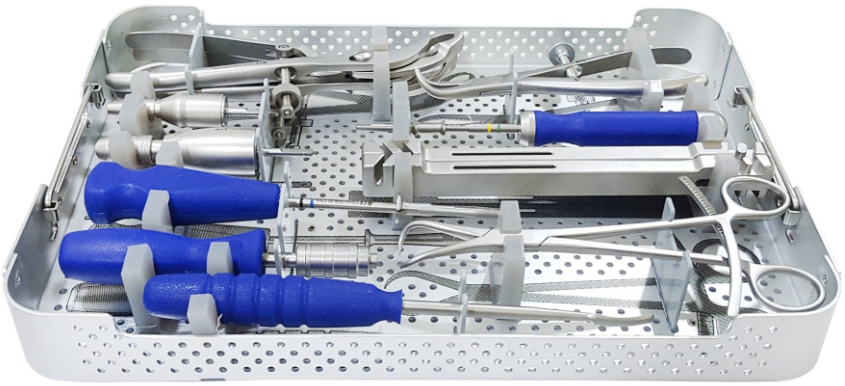
7-050-03 Instrument Trays For 3.5mm Wise-Lock Small Fragment Instrument Set

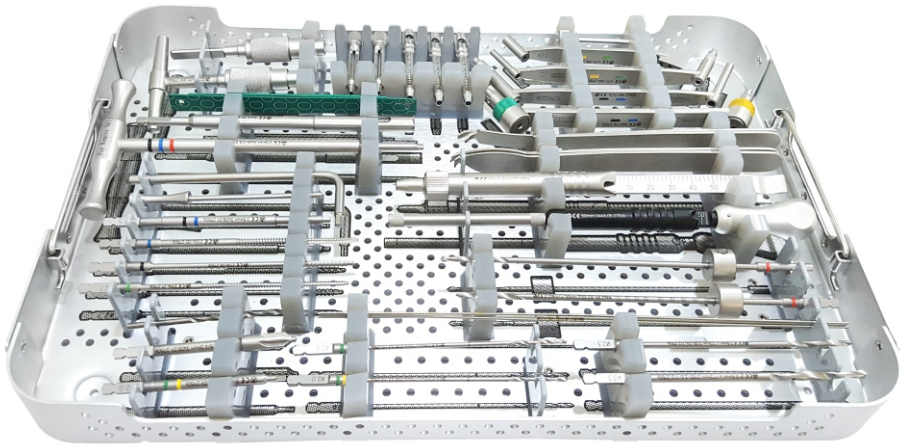




IC-2310-WL Container for 3.5mm Wise-Lock Small Fragment Instrument Set

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 range upto 60mm	1
3445-2.5	Screw Driver, Hex 2.5mm, Self-Retaining (for Screw Removal)	1
3992-035	Allen Key for Dill Bit Stopper Ø3.0mm	1
2100-2.0-110	Drill Bit with Quick Coupling, Ø2.0mm x Length 110mm	2
2100-2.5-112	Drill Bit with Quick Coupling, Ø2.5mm x Length 112mm	1
2100-3.5-112	Drill Bit with Quick Coupling, Ø3.5mm x Length 112mm	1
2103-2.8-165	Drill Bit with Quick Coupling with Stopper, Ø2.8mm x Length 165mm	2
2104-27	Bone Tap Quick Coupling for Wise Lock Screws, Ø2.7mm	1
2104-02	Bone Tap Quick Coupling for Cortical Screws, Ø3.5mm	1
2104-04	Bone Tap, Quick Coupling for Cancellous Screws, Ø4.0mm	1
3400-01	Countersink for Ø3.5/4.0mm Screws, Quick Coupling	1
3408-01	Hexagonal Screw Driver Shaft - 2.5mm Tip, Quick Coupling	1
3408-03	Hexagonal Screw Driver Shaft - 2.0mm Tip, Quick Coupling	1
2186-2.5	HSS Drill Bit, Ø2.5, Metal	1
2106-1.2	Guide Sleeve for Ø1.2mm K. Wires	1
3443-05	Depth Gauge, measuring range upto 50mm, for Ø2.4mm/2.7mm Screws	1
3443-39	Trephine	1
BT-SF-06	Bending Template, Small	1
BT-SF-08	Bending Template, Medium	1
BT-SF-10	Bending Template, Large	1
3402-000	T-Handle with Quick Coupling	1
1472-054	Quick Coupling Shaft	1
TDG-2.7	Threaded Drill Guide, Ø2.7mm (For Drill Bit 2.0mm)	2
3441-18	Threaded Drill Guide, Ø3.5mm (For Drill Bit 2.8mm)	3
3420-01	Drill Sleeve Insert, Ø3.5/2.5mm	1
1472-036	Drill Guide 2.0mm	1
1472-044	Double Drill Guide, Ø2.0/2.7mm	1
1472-046	Self Centering Double Drill Guide, Ø2.5/3.5mm	1
3441-16	Drill Guide for Neutral and Loaded Position, Ø3.5mm	1
1472-066	Hohmann Retractor, 6.5mm	1
1472-068	Hohmann Retractor, 8.5mm	1
2146-018	Hohmann Retractor, 15.5mm	2
2149-1012	Periosteal Elevator, Straight, 12mm	1
3406-02	Hexagonal Screw Driver-2.0mm Tip	1
3406-02S	Screw Holding sleeve for 2.0mm Tip Screwdriver	1
3406-03	Hexagonal Screw Driver-2.5mm Tip	1
3406-03S	Screw Holding sleeve for 2.5mm Tip screwdriver	1
3409-01L	Small Bending Iron, Left	1
3409-01R	Small Bending Iron, Right	1
2107-1180	Reduction Forcep, Pointed, Ratchet Lock, 180mm	1
2106-1160	Reduction Forcep, Serrated Jaws, Speed Lock, 160mm	1

Codes	Set Consisting of:	Units
2106-190	Self Centering Bone Holding Forcep, Speed Lock, 190mm	2
2150-1006S	Periosteal Elevator with Silicon Handle, Curved, 6mm	1
TQ-2.0	Torque Limiting Attachment, 0.8Nm	1
TQ-2.5	Torque Limiting Attachment, 1.5Nm	1
1472-064	Toque Screw Driver 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 Hoding Forcep For 3.5mm Wise-Lock Small Fragment System	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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