

Locking Olecranon Plate 3.5mm

Surgical Technique

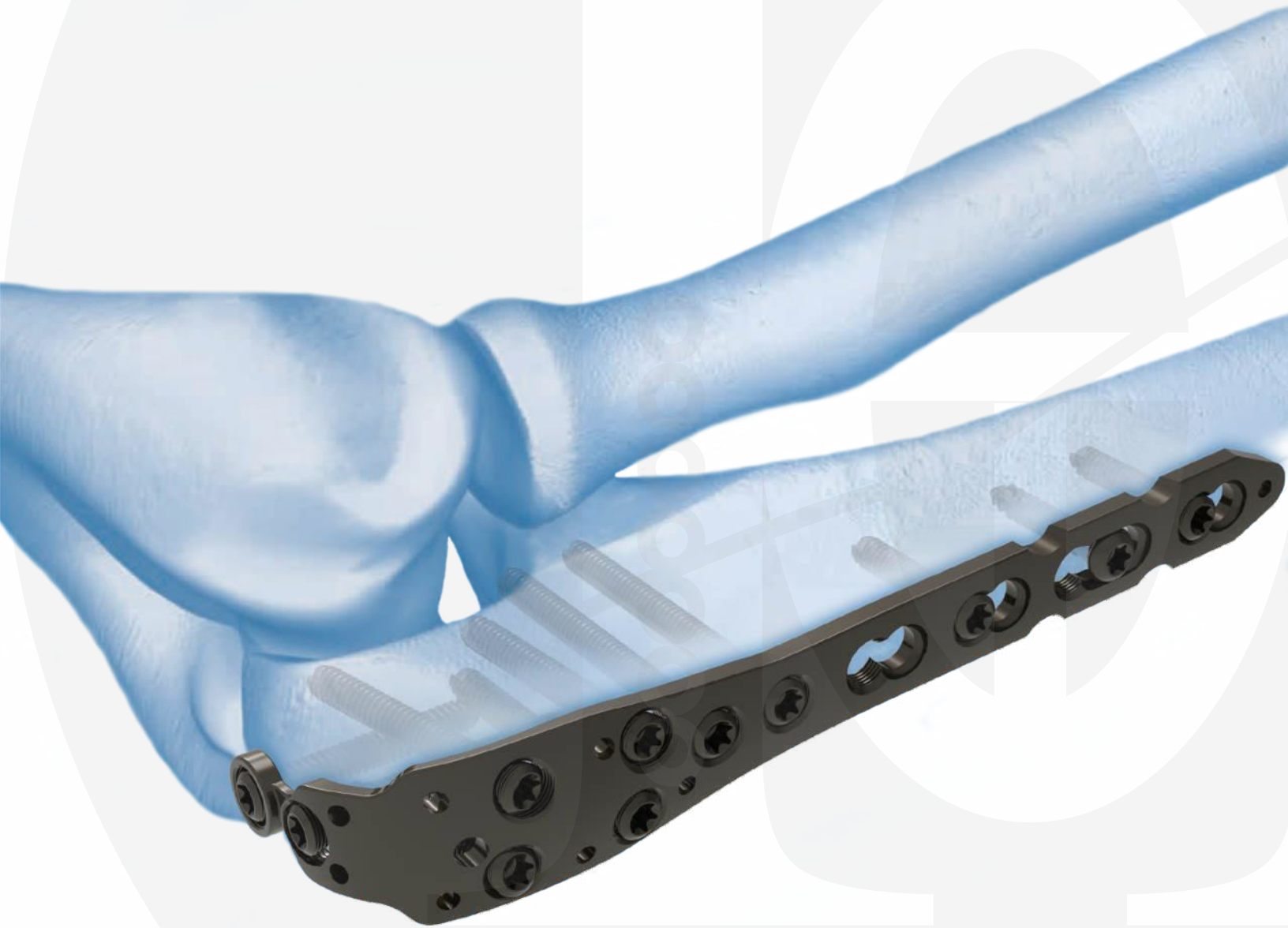


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Locking Olecranon Plate. The anatomical fixation system with angular stability for olecranon and proximal ulnar fractures.

Anatomically precontoured

- ◆ Plates are precontoured for anatomical fit.
- ◆ Notches in the plate shaft to allow the plate to be shaped to the individual anatomy of the bone.
- ◆ The tab can be cut off if not required.

Designed for patient comfort

- ◆ The proximal, spoon-shaped part of the plate is slightly thinner than the shaft.
- ◆ The position and angle of the screws are anatomically adapted to allow reduction of fractures.

Allows MIS technique

The Locking Olecranon Plate System provides stable fracture fixation aiming at preserving vascular supply. This helps to create an improved environment for bone healing, helping to accelerate patient's return to previous mobility and function.



Indications

- ◆ Complex extra- and intra-articular olecranon fractures
- ◆ Pseudoarthroses of the proximal ulna
- ◆ Osteotomies
- ◆ Simple olecranon fractures

Contraindications

- ◆ Acute infections
- ◆ Children in growth phase

Case 1

- ◆ Male patient, 79 years old
- ◆ Olecranon fracture: 21-B1, right arm
- ◆ Bad bone quality
- ◆ Implant: Locking Olecranon Plate with 8 holes

Case 2

- ◆ Male patient, 41 years old
- ◆ Olecranon fracture: 21-C2, right arm
- ◆ Implant: Locking Olecranon Plate with 4 holes



Preoperative, AP view



Image intensifier during surgery, lateral view



Postoperative (1 day after surgery), AP view



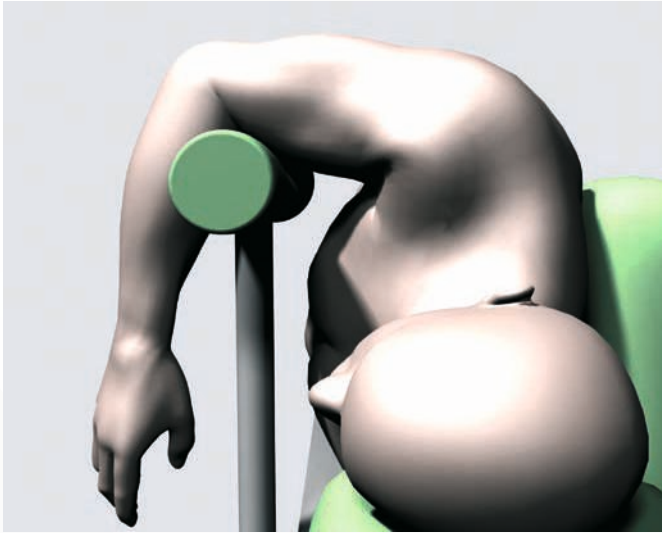
Preoperative, lateral view



Postoperative (10 days after surgery), lateral view



Postoperative (10 days after surgery), AP view



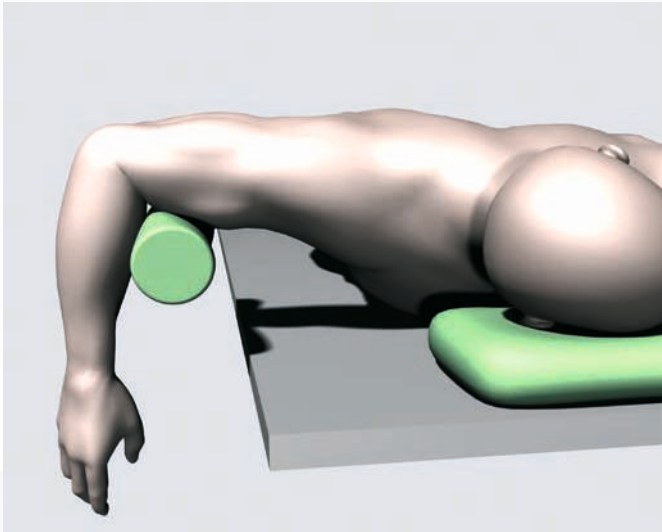
1. Position the patient

Place the patient either in the prone or the lateral position with the elbow flexed over a side rest. Depending on the fracture, use a posterior access up to approximately 5cm distal from the supracondylar region.

The supine position with the forearm placed across the chest is an acceptable option, especially with extended approaches to the lateral pillar or column.

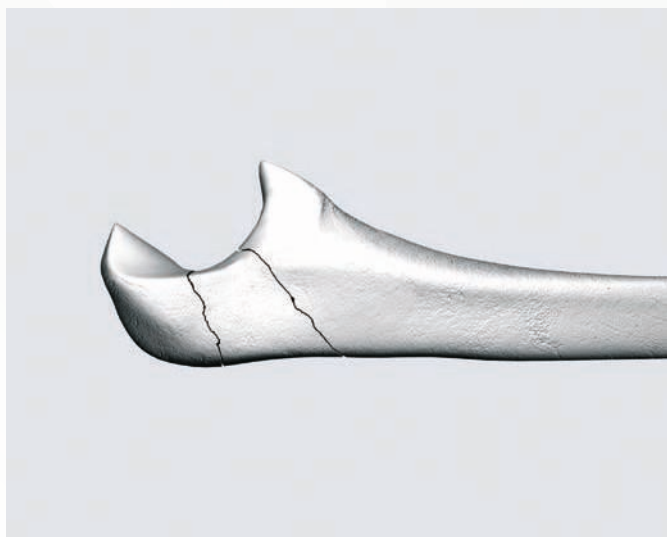
Note:

The position is chosen by the surgeon depending on his or her preference.



2. Surgical approach

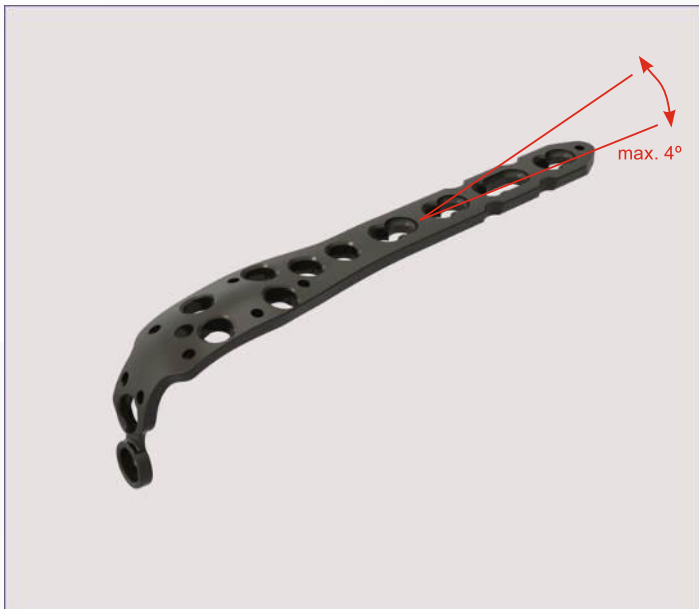
The incision runs posterior from the supracondylar area to a point 4 or 5cm distal to the fracture. It can be slightly curved to the radial side to protect the ulnar nerve.



3. Reduce the fracture and provide temporary fixation

Reduce the fracture directly or indirectly depending on the type of fracture. Examine the reduction of the coronoid process to determine if it is correct before fixation.

Use Kirschner wires for temporary fixation.



4. Determine plate length and adapt the plate

Instruments

616A.002 Bending Iron Small for Plates 2.7 and 3.5mm

616B.002 Bending Iron Small for Plates 2.7 and 3.5mm

Select a plate length appropriate for the fracture.

The plate can be bent slightly to adapt to the shape of the bone.

The plate can be bent at max. 4° at each notch in the plane of the shaft.

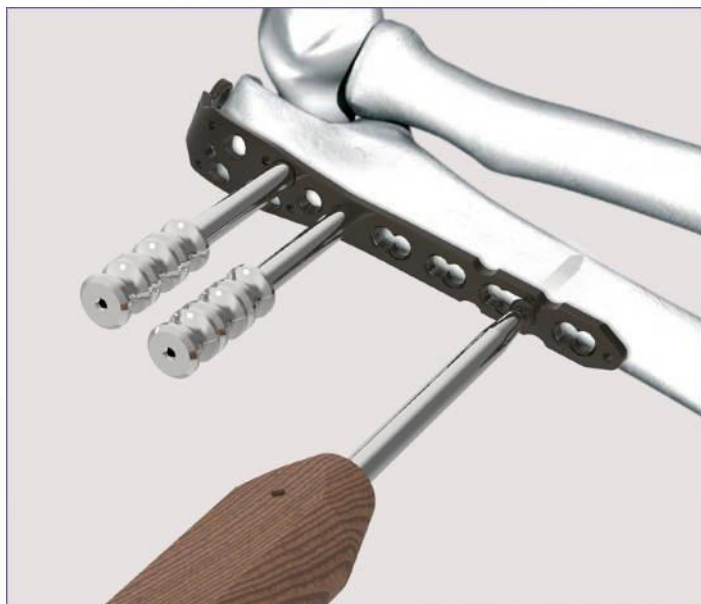
The tendon may have to be split in order to apply the plate from a posterior direction.

Evaluate whether or not the proximal tab should be used. If not, it can be cut off.

The tab can be bent for appropriate screw positioning, using the bending pin.

Precaution:

If the tab is bent, take care that the screw does not collide with proximal screws



5. Attach the plate temporarily

Instruments

- 733.021 Outer Sleeve 6.0/5.0 for Plate
- 733.022 Drill Sleeve 2.8mm
- 733.023 Sleeve for K Wire 1.6mm
- 614.025 Shaft for Hexagonal Screw Driver
2.5mm Tip for 3.5/4.0mm screws
- or
- 614.T15 Shaft for Star Screw Driver T15 Tip for
3.5/4.0mm screws

After adapting the plate, mount the aiming device, drill and centering sleeves on the proximal part of the plate.

Position the plate on the reduced bone, and attach it temporarily with a cortex screw 3.5mm



6. Determine screw length for proximal part

Instruments

609.008 Open Measuring Device

Alternative

609.002 Depth Gauge For 3.5mm To 4.0mm
Screw Length 80mm

Determine the screw position and length in the proximal region with a K-wire and the direct measuring device.

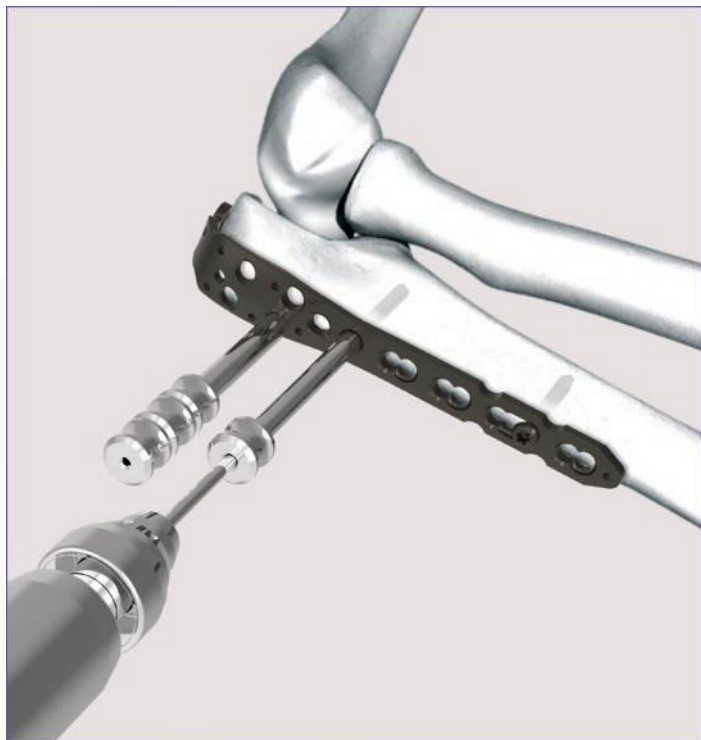
After positioning the plate, insert the Kirschner wire to the desired location using an image intensifier. Determine the length of the screw with the direct measuring device.

Alternative:

Remove the Kirschner wire and centering sleeves, and determine the length of the screw hole with the depth gauge after drilling.

Precaution:

If screws longer than 30mm are used in the proximal part, they can collide with the shaft screws.



7. Drill screw hole and insert screw in proximal part

Instruments

601.019 Drill Bits 2.8mm x 165mm for Quick Coupling T Handle

735.07 Torque Limit Adapter 1.5 Nm

Remove the centering sleeve. Pre-drill the screw hole with the drill bit. Remove the drill sleeve and drill bit.

Insert the screw manually or using a power tool. Always use the torque limiter to restrict the maximum torque. A distinct click can be heard when the maximum torque is reached, indicating a secure fit. Remove the screwdriver and centering sleeve.

Repeat steps 6 and 7 until all required proximal screws are inserted.



8. Insert the screws in the shaft area

Instruments

733.035	LCP Drill Sleeve 3.5mm, For Drill Bits 2.8mm
601.019	Drill Bits 2.8mm x 165mm for Quick Coupling T Handle
609.002	Depth Gauge For 3.5mm To 4.0mm Screw Length 80mm
735.07	Torque Limit Adapter 1.5 Nm
614.025	Shaft for Hexagonal Screw Driver 2.5mm Tip for 3.5/4.0mm screws
or	
614.T15	Shaft for Star Screw Driver T15 Tip for 3.5/4.0mm screws

Carefully screw the LCP drill sleeve into the threaded part of the desired combination hole until the thread completely engages. Pre-drill the screw hole with the 2.8mm drill bit. Determine the screw length with the depth gauge or scaled drill bit. Insert the screw as described in step 7.

Repeat this step until stable plate-bone fixation is achieved.

Instruments

- | | |
|---------|---|
| 614.025 | Shaft for Hexagonal Screw Driver |
| or | 2.5mm Tip for 3.5/4.0mm screws |
| 614.T15 | Shaft for Star Screw Driver T15 Tip for |
| | 3.5/4.0mm screws |

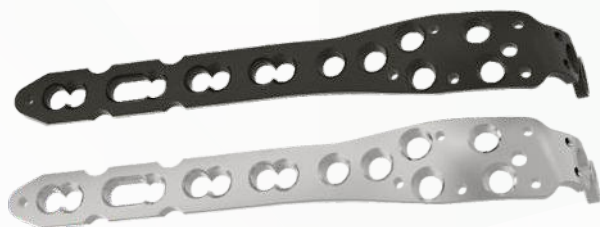
Unlock all screws from the plate, then remove the screws completely from the bone. This prevents simultaneous rotation of the plate when unlocking the last locking screw.

If a screw cannot be removed with the screwdriver (e.g. if the hexagonal or Stardrive recess of the locking screw is damaged or if the screw is stuck in the plate), use the T-Handle with Quick-Coupling to insert the Extraction Screw into the screw head, and unscrew the screw in a counter clockwise direction.



Locking Olecranon Plates 3.5mm (Right)

SS Code No.	Titanium Code No.	Numbers of Holes	Length (mm)
171.04R	T171.04R	4	110
171.05R	T171.05R	5	123
171.06R	T171.06R	6	136
171.07R	T171.07R	7	149
171.08R	T171.08R	8	162
171.09R	T171.09R	9	175
171.10R	T171.10R	10	188
171.11R	T171.11R	11	201



Locking Olecranon Plates 3.5mm (Left)

SS Code No.	Titanium Code No.	Numbers of Holes	Length (mm)
171.04L	T171.04L	4	110
171.05L	T171.05L	5	123
171.06L	T171.06L	6	136
171.07L	T171.07L	7	149
171.08L	T171.08L	8	162
171.09L	T171.09L	9	175
171.10L	T171.10L	10	188
171.11L	T171.11L	11	201



Screws

146.10-80	3.5mm Locking Compression Screws length 10–80 mm, self-tapping, with hexagonal recess
200.10-60	3.5mm Locking Compression Screws Star Head length 10–60 mm, self-tapping, with Stardrive recess
460.12-55	Cortex Screw 3.5mm Star Head length 12–55 mm, self-tapping, with Stardrive recess

All screws are available Stainless Steel and Titanium.

733.021 Outer Sleeve 6.0/5.0 for Plate	733.022 Drill Sleeve 2.8mm
	
733.023 Sleeve for K Wire 1.6mm	616A.002 Bending Iron Small for Plates 2.7 & 3.5mm 616B.002 Bending Iron Small for Plates 2.7 & 3.5mm
	
614.025 Shaft for Hexagonal Screw Driver 2.5mm Tip for 3.5/4.0mm screws	614.T15 Shaft for Star Screw Driver T15 Tip for 3.5/4.0mm screws
	
601.019 Drill Bits 2.8mm x 165mm for Quick Coupling T Handle	733.035 LCP Drill Sleeve 3.5mm, For Drill Bits 2.8mm
	
612.011 Quick Coupling Handle for 3.5/4.0mm Screw	735.07 Torque Limit Adapter 1.5 Nm
	

Note: The Olecranon Plate is compatible with 3.5 LCP instruments and standard small-fragment instruments. These additional instruments are also required, although they are not shown here.



Sets

AGC.16A Small Fragment Locking Instrument and Universal Implant Set

AGC.69A Locking Distal Tibia Plate 3.5mm Set-A

Instruments

601.031	Drill Bits 2.0mm x 145mm for Quick Coupling T Handle
601.021	Drill Bits 2.3mm x 130mm for Quick Coupling T Handle
601.023	Drill Bits 2.5mm x 165mm for Quick Coupling T Handle
601.024	Drill Bits 2.7mm x 165mm for Quick Coupling T Handle
601.019	Drill Bits 2.8mm x 165mm for Quick Coupling T Handle
603.001	Quick Coupling T Handle
603.027	Tap 2.7mm Cortex Screw For Quick Coupling
605A.027	Universal Drill And Tap Sleeve 2.7/2.0mm
605A.035	Universal Drill And Tap Sleeve 3.5/2.5mm
606.035	Counter Sink for 3.5mm
607.035	DCP Drill Sleeve 3.5mm for use 2.5mm Drill
609.002	Depth Gauge For 3.5mm To 4.0mm Screw Length 80mm
609.004	Depth Gauge For 2.4mm To 2.7mm Screw Length 60mm
609.008	Open Measuring Device
610.002	Screw Forceps Self Holding
612.011	Quick Coupling Stright Handle
614.025	Shaft Small Hexagonal Screw Driver 2.5mm Tip
616.013	Universal Plate Bender
617.001	Sharp Hook
619.035	Screw Remover With Quick coupling 2.5mm Hex
655.006	Bone Curette Small 4mm x 6mm
660.010	Triple Drill Guide 2.0mm with 3hole Opposite side 1hole
660.013	K Wire Bender Iron
660.014	Universal Wire Cutter/Bender/Pilers
687.144	Self-centering Bone Holding Forceps Length 144mm
687.191	Self-centering Bone Holding Forceps Length 191mm
688.146	Reduction Forceps Serrated jaws Length 146mm
689.126	Reduction Forceps With Points Length 126mm
689.140	Reduction Forceps With Points Length 140mm
689.205	Reduction Forceps With Points Length 205mm
706.008	Retractorl 8mm wide
706.015	Retractorl 15mm wide
711.001	Periosteal Elevator Curved Blade 6mm wide
733.021	Outer Sleeve 6.0/5.0 for Plate
733.022	Drill Sleeve 2.8mm
733.023	Sleeve for K Wire 1.6mm
733.027	LCP Drill Sleeve 2.7mm, For Drill Bits 2.3mm
733.035	LCP Drill Sleeve 3.5mm, For Drill Bits 2.8mm
734.027	Tap 2.7mm Locking Screw For Quick Coupling
734.035	Tap 3.5mm Locking Screw For Quick Coupling
735.06	Torque Limit Adapter 0.8 Nm
735.07	Torque Limit Adapter 1.5 Nm
738.035	LCP Plate Holder 3.5mm Length 100mm
603A.035	Tap 3.5mm x 110mm for Quick Coupling
603A.040	Tap 4.0mm x 110mm for Quick Coupling
612A.025	Screw Driver for Holding Sleeve
613A.025	Holding Sleeve for Locking screws 3.5/4.0mm
613B.025	Holding Sleeve for Non Locking screws 3.5/4.0mm
614.T08	Shaft for Star Screw Driver T08 Tip for 2.4/2.7mm screws
614.T15	Shaft for Star Screw Driver T15 Tip for 3.5/4.0mm screws
614.020	Shaft for Hexagonal Screw Driver 2.0mm Tip for 2.4/2.7mm screws
616A.002	Bending Iron Small for Plates 2.7 and 3.5mm
616B.002	Bending Iron Small for Plates 2.7 and 3.5mm
805.007	4mm Tommy Bar
328B.15	K Wire (Double Side Trocar Tip) 1.5mm x 150mm
328B.18	K Wire (Double Side Trocar Tip) 1.8mm x 150mm
328B.20	K Wire (Double Side Trocar Tip) 2.0mm x 150mm
613C.027	Holding Sleeve for Locking screws 2.4/2.7mm
613D.027	Holding Sleeve for Non Locking screws 2.7mm



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