



The Locking Compression Plating - ULTRALOCK TECHNOLOGY

The following points distinguish treatment using locking screw technology:

- It allows fracture treatment using conventional plating with conventional Cortical or Cancellous bone screws.
- An ULTRALOCK plate can also be used as an internal fixator and permits stable bridging over shattered zones.
- The ULTRALOCK system permits the combination of Conventional and locking screws.
- Unicortical locking screws permit better vascularity.

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Important notes:

The UltraLock Plating system applies to many different plate types and is therefore suitable for a large number of fracture types of small bones. For that reason, this Surgical Technique does not deal with any specific fracture type. Please refer to literatures of Principles of Fracture Management for specific fracture procedure.

Indications

The Ortho Max UltaLock Compression Plates — Small & Narrow, are intended for fixation of various small bones, such as the Radius/Ulna, Humerus, Clavicle and Acetabulum.

They are also for use in fixation of osteopenic bone and fixation of nonunions or malunions.

Various Plates options and their intended use are:

- -Dynamic Compression Locking Plate Thin for Radius/Ulna- For Fracture Fixation of Radius/Ulna Shaft.
- Proximal Humerus Multi-Angle Locking Plates For Fracture Fixation of Proximal Humerus Head & Shaft
- Distal Humerus Locking Plates Dorsolateral with Support / without Support For Internal Fixation of Distal Humerus Condyle.
- Distal Humerus Locking Plates Medial For Internal Fixation of Distal Humerus
 Condyle.
- Extra-Articular Locking Plates For Internal Fixation of Distal Humerus Condyle.
- Olecronan Locking Plates For Internal Fixation of Olecronan.
- Clavicle Locking Plates (Medial) For Internal Fixation of Medial Clavicle Bone.
- Superior Clavical Locking Plates (with Lateral Extension) For Internal Fixation of Lateral Clavicle Bone.
- Clavicle Hook Plates For Internal Fixation of Clavicle Head.
- Reconstruction Locking Plates For Internal Fixation of small Fragment & Acetabulum

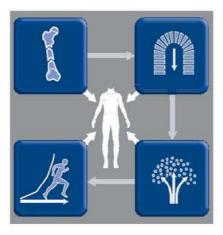
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AO Principles

In1958, AO formulated four basic principles, which have become the guidelines for

internal fixation



Anatomic reduction

Fracture reduction and fixation to restore anatomical

Stable fixation

Fracture fixation providing Absolute or relative stability, as Relationships.

Early, active Mobilization

Early and safe mobilization and rehabilitation of the injured part and the patient as a whole.

Required by the patient, the injury, and the personality of the fracture.

Preservation of blood supply Preservation of the blood supply to soft tissues and bone by gentle reduction techniques and careful handling.

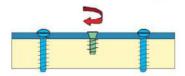
Combined Internal Fixation

The combination of conventional compression plating and locked plating techniques enhances plate osteosynthesis. The result is a combination hole that, depending on the indication, allows conventional compression plating, locked plating, or a combination of both.

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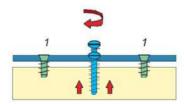


Internal fixation using a combination of locking screws and standard screws



Note: If a combination of Cortical and locking screws is used, a cortical screw should be inserted first to pull the plate to the bone.

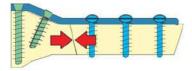
If locking screws (1) have been used to fix a plate to a fragment, subsequent insertion of a conventional screw



(2) in the same fragment without loosening and retightening the locking screw is NOT RECOMMENDED.

Note: If a locking screw is used first, care should be taken to ensure that the plate is held securely to the bone to avoid spinning of the plate about the bone.

Dynamic compression



Once the metaphyseal fragment has been fixed with locking screws, the fracture can be dynamically compressed using conventional screws in the DC hole portion of the ULTRALOCK Plate.

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Locked and conventional plating techniques

- First, use lag screws to anatomically reconstruct the joint surfaces.
- The behavior of a locking screw is not the same as that of a lag screw. With the locked plating technique, the implant locks the bone segments in their relative positions regardless of how they are reduced.
- A plate used as a locked plate does not produce any additional compression between the plate and the bone.
- The unicortical insertion of a locking screw causes no loss of stability.

Surgical Technique

Plate selection

The plates are available in various lengths and configurations as shown above similar to the Ortho Max Basic Plating Set.

Contouring



Use the current Plate bender in Pair to contour the Locking Compression Plate to the anatomy.

Note: The plate holes have been designed to accept some degree of deformation. When bending the plate, place the benders on two consecutive holes.

This ensures that the threaded holes will not be distorted. Significant distortion of the locking holes will reduce locking effectiveness.

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Reduction and temporary plate placement



The plate may be temporarily held in place with K wire holding in bony fragment.

Note: The middle of the plate should be positioned over the fracture site if compression of the fracture fragments is desired.

Screw insertion:



Determine whether conventional Cortical screws, cancellous bone screws or locking screws will be used for fixation. A combination of all may be used.

Note: If a combination of Cortical, cancellous and locking screws is used, a conventional screw should be used first to pull the plate to the bone.

Warning: If a locking screw is used first, care should be taken to ensure that the plate is held securely to the bone to avoid spinning of the plate about the bone.

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Insertion of a Cortical or cancellous bone screw

Use the 4.5 mm Drill & Tap Sleeve for an eccentric (compression) or neutral (buttress) insertion of Cortical screws.



Neutral position

Screw insertions:

Insertion of 4.0 mm and 5.0 mm Locking Screws

Note: The locking screw is not a lag screw. Use non locking screws when requiring a precise anatomical reduction (e.g., joint surfaces) or interfragmentary compression. Before inserting the first locking screw, perform anatomical reduction and fix the fracture with lag screws, if necessary. After the insertion of locking screw as anatomical reduction will no longer be possible without loosening the locking screw.

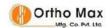
A Screw the appropriate Threaded Locking Drill Sleeve for 4.0 mm or 5.0 mm screws into plate hole until fully seated.





B Use the appropriate Drill Bit (3.2 mm for 4.0 mm screws and 4mm for 5.0 mm screws) to drill to the desired depth.

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C Remove the drill Sleeve.



D Use the Depth Gauge 3.5mm to determine screw length.

Note 1: Since the direction of a locking screw is determined by plate design, final screw position may be verified with a K wire prior to insertion. This becomes especially important when the plate has been contoured or applied in metaphyseal regions around joint surfaces.

Warning: Do not try to bend the plate using the Locking Drill Sleeve because damage may occur to the hole's threads.



E Insert the locking screw of respective dia. And length using the Torque Limit Screw driver of 4mm.

Note: The screw is securely locked to the plate when an audible "click" is heard.

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Alternative Method of Locking Screw Insertion

Use the Hexagonal Screw driver 3.5mm to manually insert the appropriate locking screw.

Carefully tighten the locking screw, as excessive force is not necessary to produce effective screw-to- plate locking which can damage screw head and driver.

Postoperative Treatment

Postoperative treatment with Locking Compression Plates does not differ from conventional internal fixation procedures.

Implant removal

The UltraLock Plates, unlock all screws from the plate; then remove the screws completely from the bone by following screw removal technique of cortical screws with the help of Hexagonal Screw Driver 3.5mm. This prevents simultaneous rotation of the plate when removing the last locking screw .The following should be noted in order to avoid damage to the instrument or implants: Always engage the screw driver tip firmly into the head of screw to remove. Don't give extra quick torque to damage screw head. If screw head gets damaged during removal, use the screw removal instruments to remove damage head screws.

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Note: The final decision of removing the implants shall be taken by the operating surgeon only. It is recommended that the implant used as an aid for healing should be removed once its service is over after proper consultation and examination by the operating surgeon in final follow up, particularly in younger and more active patients.

Caution:

Used Implants:

Used implants which appear undamaged may have internal and /or external defects. It is possible that individual stress analysis of each part fail to reveal the accumulated stress on the metals as a result of use within the body. This may lead ultimately to implant failure after certain point of time due to metal fatigue. Therefore reuses of implants are strictly not recommended.

Disposal of Used Implants:

Every used or removed implant must be discarded after use and must never be re- used. It should be bent or scratched & then disposed of properly so that it becomes unfit for reuse. While disposing it off, it should be ensured that the discarded implant does not pose any threat to children, stray animals and environment. Dispose of the implants as per applicable medical practices and local, state and country specific regulatory requirements of Bio Medical Waste rules.

Packaging Material Dispoal:

The packaging material of this device is made of LDPE and therefore if swallowed, may cause choking Hazards. Therefore, it should be disposed of in such ways that keep out of reach of children and stray animals.

Single Brand Usage:

Implant components from one manufacture should not be used with those of another.

Implants from each manufacture may have metal, dimensions and design differences so that the use in conjunction with different brands of devices may lead to inadequate

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fixation or adverse performances of the devices.

MRI SAFETY INFORMATION

- Ortho Max Mfg. Co Pvt. Ltd. implants are manufactured from Titanium Gr.2, SS316L, SS316LVM material for Bone Plate & Titanium Gr.5, SS316L, SS316LVM material for Bone Screw, Pins & Wires, both are non-magnetic material, hence it do not pose any safety risk.
- Patients should be directed to seek a medical opinion before entering potentially adverse environments that could affect the performance of the implants, such as electromagnetic or magnetic field or including a magnetic resonance environment.
- Doctor shall conduct a Risk Benefit Analysis before directing the patient to enter electromagnetic or magnetic fields or including a magnetic resonance environment.
- The Ortho Max Mfg. Co Pvt. Ltd. implants has not been evaluated for safety and compatibility in the MR environment but on the basis of literature study below mentioned points can be taken care during MRI
- ✓ The minimum recommended time after the implantation that allows patients to safely undergo MRI examination or allowing the patient or an individual to enter the MRI environment is 6 (six) weeks.
- ✓ The maximum recommended time limit for MRI examination in patients implanted with the evaluated device is 30 min with a scanner operating at 1.5T (Tesla) or less.

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Product Details:



Dynamic Compression Locking Plates (DCLP) Thin for Radius/Ulna



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Intended Use	For Internal Fixation of Radius/Ulna shaft
Profile	10mm x 3.2mm profile, 4mm compatible, 0.8mm thread pitch
Material	SS 316L & Titanium

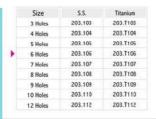


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Proximal Humerus Multi Angle Locking Plates





Intended Use For Internal Fixation of proximal Humerus Head & Shaft

Profile 12mm x 3.5mm, 4mm compatible Screw, 0.8 mm thread pitch

Material SS 316L & Titanium

Distal Humerus Locking Plates Dorsolateral With Support



	Size	S.S.	Reference
	4 Holes	2018.140(L/R)	2018.T140(L/R)
	5 Holes	2018.150 (L/R)	2018.T150(L/R)
-	6 Holes	2018.160 (L/R)	2018.T160(L/R)
	7 Holes	2018.170(L/R)	2018.T170(L/R)
	8 Holes	2018.180 (L/R)	2018.T180(L/R)
	9 Holes	2018.190(L/R)	2018.T190(L/R)
	10 Holes	2018.110(L/R)	2018.T110(L/R)
	12 Holes	2018.112 (L/R)	2018.T112(L/R)

Profile
Profile
Profile
Material
SS 316L & Titanium
Profile
Solution of Distal Humerus Condyle
10mm x 3mm, 6 Distal Holes -3mm Screw compatible
Shaft Holes 4mm Screw compatible, 0.8mm thread pitch

Distal Humerus Locking Plates Dorsolateral Without Support



Size	S.S.	Titaniun
4 Holes	2018.240 (L/R)	2018.T240(L/R)
5 Holes	2018.250 (L/R)	2018.T250(L/R)
6 Holes	2018.260 (L/R)	2018.T260(L/R)
7 Holes	2018.270(L/R)	2018.T270(L/R)
8 Holes	2018.280(L/R)	2018.T280(L/R)
9 Holes	2018.290 (L/R)	2018.T290(L/R)
10 Holes	2018.210(L/R)	2018.T210(L/R)
12 Holes	2018.212 (L/R)	2018.T212(L/R)

Intended Use For Internal Fixation of Distal Humerus Condyle

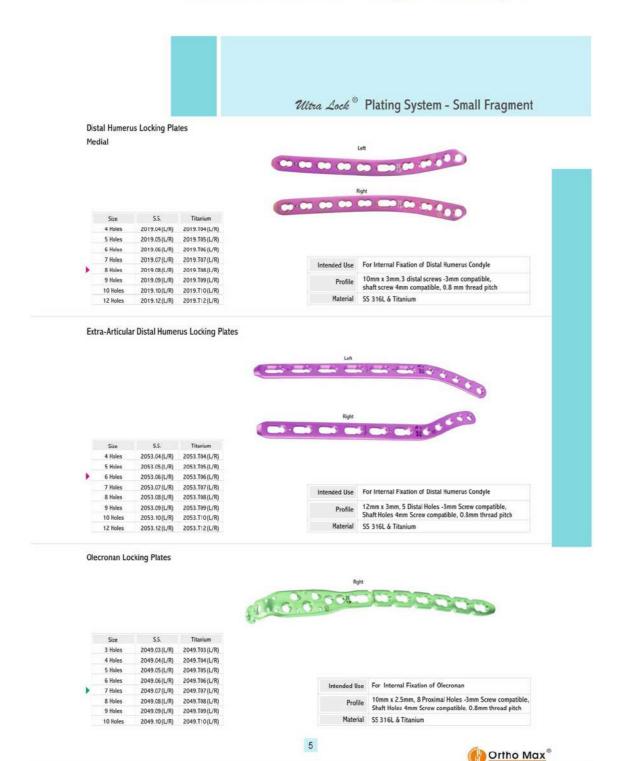
10mm x 3mm, 4 Distal Holes -3mm Screw compatible
Shaft Holes 4mm Screw compatible, 0.8mm thread pitch
SS 316L & Titanium



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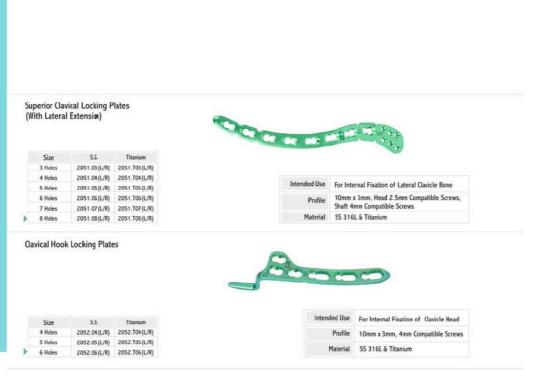




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Reconstruction Locking Plate - 4mm

	Size	S.S.	Titanium
	4 Holes	212.404	212.T404
	5 Holes	212.405	212.T405
	6 Holes	212.406	212.T406
	7 Holes	212.407	212.T407
	8 Holes	212.408	212.T408
	9 Holes	212.409	212.T409
	10 Holes	212.410	212.T410
Þ	12 Holes	212.412	212.T412
	14 Holes	212,414	212.T414
	16 Holes	212.416	212.T416
	20 Holes	212,420	212.T420



Material SS 316L & Titanium

Profile 10mm x 2.5mm, 4mm Compatible Screws

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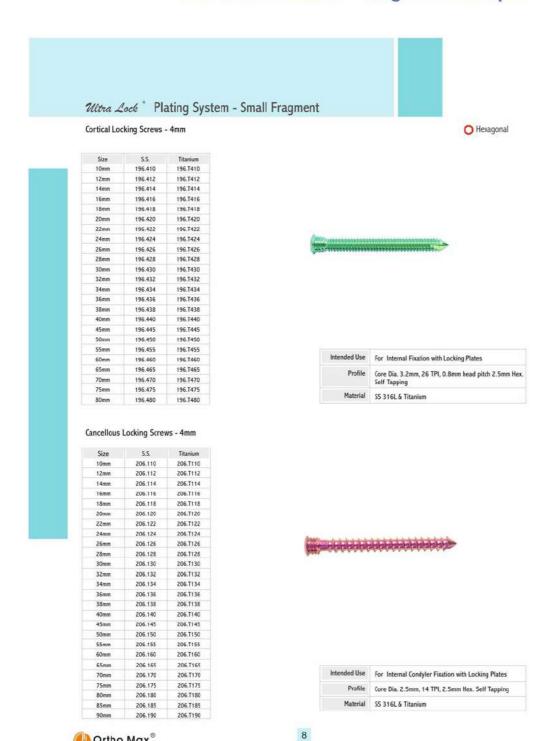
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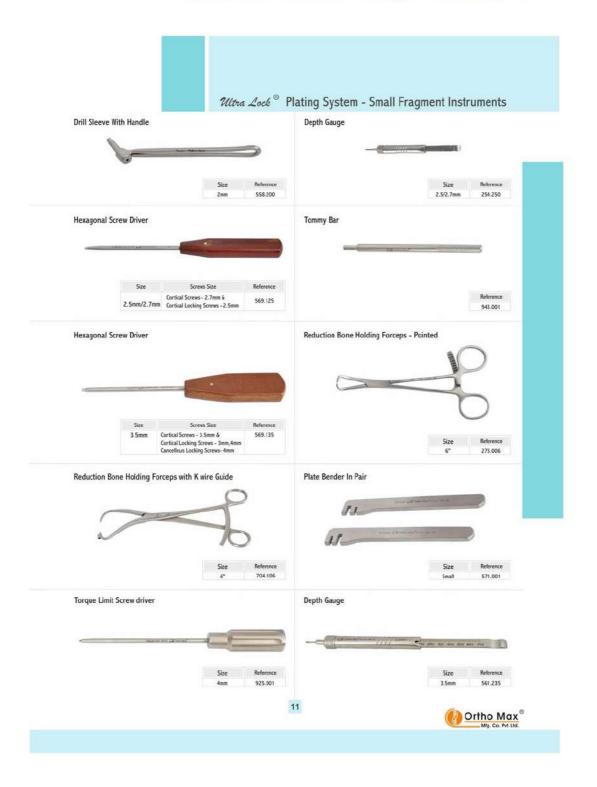
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Contents:

All in One "Ultra Lock" Small Fragment Set









Implants	Size	Qty.
Dynamic Compression Locking Plates(DCLP) Thin For Radius/Ulna - 10 mm	5H, 6H, 7H, 8H, 9H, 10H - 1 each	06 Nos
Proximal Humerus Locking Plates "MultiAngle"	4H, 5H, 6H - 1 each 7H, 8H, 10H - 1 each	03 Nos 03 Nos
Distal Humerus Locking Plates - Dorsolateral Without Support - Left & Right With Support - Left & Right	4H, 5H, 6H, 7H, 8H - 1 each 4H, 5H, 6H, 7H, 8H - 1 each	10 Nos 10 Nos
Distal Humerus Locking Plates Medial or Extra-Articular - Left & Right	4H, 5H, 6H, 7H, 8H - 1 each	10 Nos
Cortical Locking Screws	3mm x 14mm to 50mm - 3 each 4mm x 10mm to 40mm - 8 each 45,50,55,60,65,70mm - 8 each 75, 80mm - 8 each	57 Nos 128 Nos 48 Nos 16 Nos
Cancellous Locking Screws - Full Thread	4mm x 24mm To 38mm - 3 each x 40mm To 70mm - 6 each 75 & 80mm - 3 each	24 Nos 42 Nos 6 Nos

3.5mm x 10mm

12mm To 26mm - 8 each

28mm To 40mm - 4 each

Instruments		
S.S. Drill Bits - 2.2mm x 6"	(For Lock. Cortical 3mm)	02 Nos
3.2mm x 6", 8" - 1 each	(For Lock. Cortical 4mm)	02 Nos
2.5mm x 8"	(For Lock. Cancellous - 4mm)	01 No
2.7mm x 6"	(For Cortical 3.5mm x 20TPI)	02 Nos
Drill & Tap Sleeve 2.7mm x 3.5mm	(For Cortical 3.5mm x 20TPI)	01 No
Drill Sleeve 2.2mm	(For Lock. Cortical 3mm)	O2 Nos
2.5mm	(For Lock. Cancellous - 4mm)	02 Nos
3.2mm	(For Lock. Cortical 4mm)	02 Nos
Tommy Bar for Drill Sleeve		01 No
Depth Gauge - 3.5mm		01 No
Hexagonal Screw Driver - 3.5mm		01 No
Torque Limit Screw Driver - 4mm		01 No
Reduction Forceps Pointed with K Wire Guide 6"		01 No
Container For Word Lock Small Fragment Set		01 No

*Available in SS316L & Titanium

Cortical Screws 3.5mm x 14/20 TPI





04 Nos

64 Nos

28 Nos

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Instruments certified





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