





**ASTROLABE**  
life and mobility

## Medical Implants

Astrolabe recognizes that proper surgical procedures and techniques are responsibilities of medical professionals.

The following guidelines are provided for information purposes only. Each surgeon must evaluate the appropriateness of the procedures based on their medical training, experience and condition of the patient. Before using the system, the surgeon must consult the operating instructions for additional warnings, precautions, indications, contraindications and adverse effects.

# Small Fragments

**Instruments Box**  
Small Fragments



**Implants Case**  
Small Fragments



- Astrolabe Small Fragments combines the strong fixation of fixed angle construct with the compression holes in the same plate, attending multiple surgical demands.
- Astrolabe Small Fragments allows the use of conventional plating techniques, locked or bridge plating technique and the combinations of both techniques.

- **General Indications:**

Fixation of fractures , osteotomies, nonunions of:

- Clavicle
- Scapula
- Olecranon
- Humerus
- Radio
- Ulna
- Pelvis
- Fibula
- Distal Tibia

## Small Fragments Screws

**Cortical Screw Ø2.7mm**



08mm - 50mm, 2mm increments  
55mm - 60mm, 5mm increments

**Cortical Screw Ø3.5mm**



10mm - 60mm, 2mm increments  
45mm - 55mm, 5mm increments

**Shaft Screw Ø3.5mm**



16mm - 50mm, 2mm increments  
55mm - 60mm, 5mm increments

**LockingScrew Ø3.5mm**



10mm - 60mm, 2mm increments  
45mm - 55mm, 5mm increments

**Cancellous Screw Ø4.0mm  
Partly Threaded**



10mm - 40mm, 2mm increments  
45mm - 60mm, 5mm increments

**Cancellous Screw Ø4.0mm  
Fully Threaded**



10mm - 40mm, 2mm increments  
45mm - 60mm, 5mm increments

**Plug Screw Ø3.5mm**



**Spacer Screw Ø3.5 x 2mm**



## Small Fragments Plates

### Straight Plate Ti

1/3 Tubular  
05 to 12 Holes



### Straight Locking Plate Ti

05 to 14 Holes



### Tibial Medial/Distal Plate

Left and Right  
04 to 10 Holes



## SPECIAL LOCKING PLATES "T"

03 to 07 Holes



Oblique Left and Right  
03 to 07 Holes



Broad  
04 to 06 Holes



## SPECIAL LOCKING PLATE - RECONSTRUCTION

05 to 12 Holes



Curved  
04 to 12 Holes



## STEP 01

## Surgical Technique


- After choosing the appropriate plate, it can be moulded to better fit patient's anatomy.



- The plate can be temporarily placed by using the Threaded Plate Holder (short/long) (item 26/ 27) or by the Push-Pull Reduction Device (item 44).



**Note:** Avoid excessive modeling of the plate as this can compromise its locking mechanisms. When using plate benders, holes adjacent to the bender can lose the ability to lock. If this occurs, a Cortical Screw must be used.

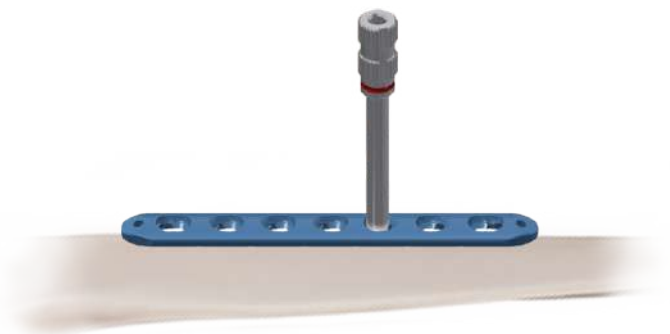
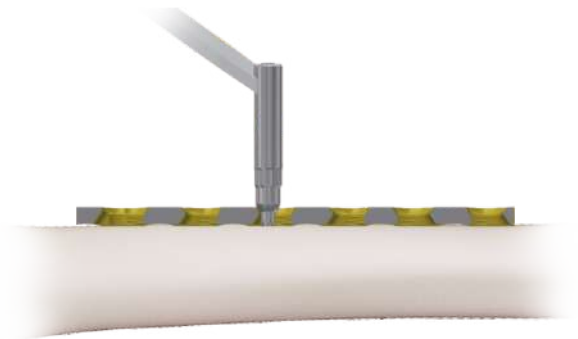
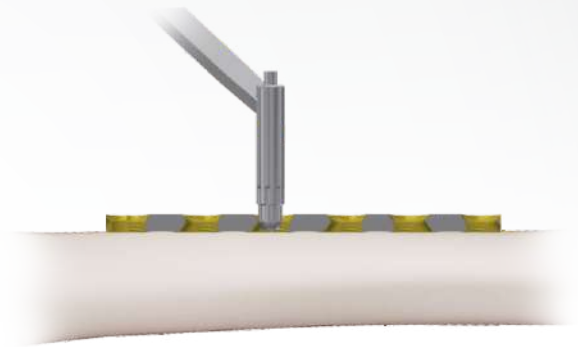
 **WARNING:** Do not try to bend the plates using the Threaded Drill Guide (item 15) , it can cause serious damages to the threads.

## STEP 02

## Surgical Technique

Determine the use of the appropriate screws and the combination between them for the fixation. If your option is to combine Cortical, Cancellous and Locking Screws, Cortical should be placed first to pull the plate to the bone.

- To place a Screw in **neutral position**, position the Universal Drill Guide (item 12/13) in order to take place in the center of the plate hole allowing a neutral pre drilling.
- To place a Screw for **dynamic compression**, position the Universal Drill Guide (item 12/13) eccentrically on the plate hole and proceed with pre drilling.
- To place a **Locking Screw**, properly attach the Threaded Drill Guide (item 15) by turning it into the threaded hole, then proceed with drilling using the Drill Bit (item 01/ 02/ 03/ 04).





## STEP 03

## Surgical Technique

- Use appropriated Drill Bit to drill to the desired depth.



### Screw Placement Verification and Mesurement

- Insert the 1.6 mm Wire Sleeve (item 08) into the 2.8mm Threaded Drill Guide (item 15) and use a Threaded Kirschner Wire through the 1.6mm Wire Sleeve until the desired depth then verify if the screw position is according to initial intentions.



## STEP 04

## Surgical Technique

- The reading of the screw measure can be acquired by placing a guidewire into Threaded Drill Guide (Locking Screws) and sliding the Direct Measure Gauge (item 21) or by using the Depth Gauge (item 20).




## STEP 05

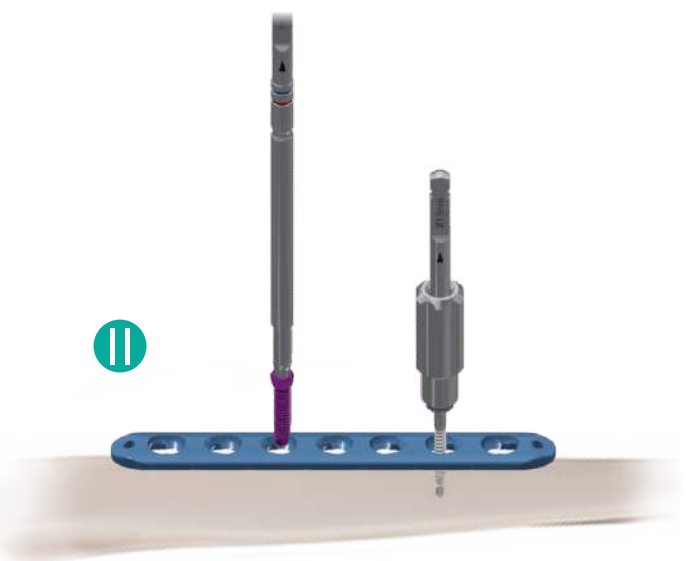
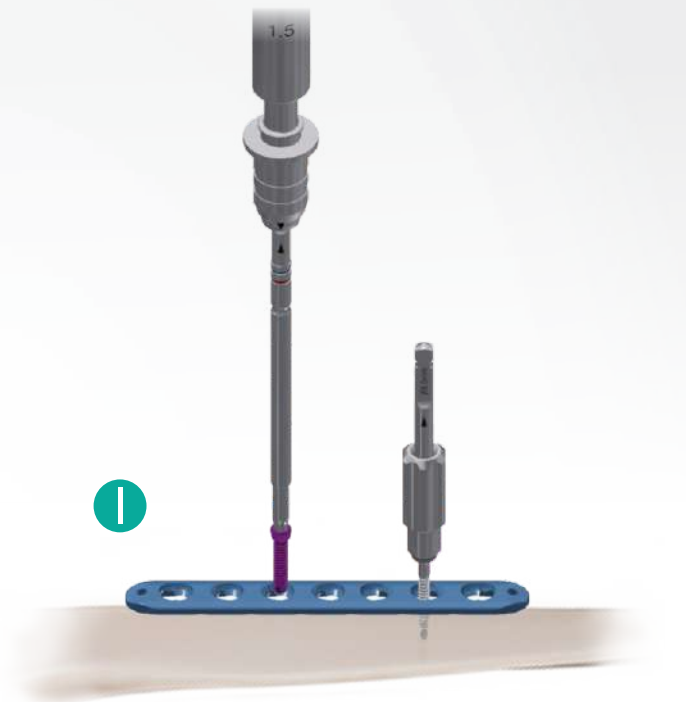
## Surgical Technique

### Screw Insertion


- I - Use the Torque Limiting ( item 42/43) attached in power tool and Shaft Screw Driver (item 18/19) to insert Locking Screws.


 **WARNING:** Never use power tool without Torque Limiting to fully insert Locking Screws.


- II - If your option is to insert the Locking Screws manually, use the the appropriated Shaft Screwdriver and carefully tighten.
- The procedure of placement of the screws is repeated as many times as necessary, for optimal fixation of the plate.
- Proceed with x-ray to check if final position is according to initial intention.





- 01 Drill Bit - Ø2.0 x 125mm - Twist**  
 Length 30 mm - AO Coupling  
 Cod.: 09.01.01.20125



- 02 Drill Bit - Ø2.5 x 165mm - Twist**  
 Length 40mm - AO Coupling  
 Cod.: 09.01.01.25165



- 03 Drill Bit - Ø3.5 x 165mm - Twist**  
 Length 40mm - AO Coupling  
 Cod.: 09.01.01.35165



- 04 Drill Bit - Ø2.8 x 165mm - Twist**  
 Length 40mm - AO Coupling  
 Red Code  
 Cod.: 09.01.14.28165


- 05 Countersink - Ø3.5 - 4.0mm**  
 AO Coupling  
 Cod.: 09.02.01.35000



- 06 Tap Cortex - Ø3.5 x 1.25mm**  
 AO Coupling  
 Cod.: 09.03.01.35000



- 07 Tap Cancellous - Ø4.0 x 1.75mm**  
 AO Coupling  
 Cod.: 09.03.02.40000



- 08 Wire Sleeve - Ø1.6 x 55mm**  
 Cod.: 09.06.02.16055





- 09 Cannulated Handle - 135mm**  
 AO Coupling - Blue  
 Cod.: 09.04.04.13510



- 10 Cannulated Handle - 120mm**  
 AO Coupling - Green  
 Cod.: 09.04.04.12030



- 11 Cannulated T-Handle**  
 AO Coupling - Blue  
 Cod.: 09.04.07.00010



- 12 Drill Guide - Ø2.7 / Ø2.0mm**  
 Universal  
 Cod.: 09.05.00.27000


















- 13 Drill Guide - Ø3.5 / Ø2.5mm**  
 Universal  
 Cod.: 09.05.00.35000


- 14 Drill Guide - Ø2.0mm**  
 Parallel  
 Cod.: 09.05.01.20000


- 15 Drill Guide - Ø2.8mm**  
 Threaded  
 Cod.: 09.05.05.28000


- 16 Drill Sleeve - Ø2.5mm**  
 Cod.: 09.06.00.25000



- |  |   |  |   |
|--|---|--|---|
| <p>17 <b>Holding Sleeve - Ø2.7 / 3.5mm</b><br/>Cod.: 09.06.04.27350</p>  |    | <p>25 <b>Reduction Forceps</b><br/>Serrated Jaw - Ratchet - 145mm<br/>Cod.: 09.10.04.01145</p> |    |
| <p>18 <b>Shaft Screwdriver - Torx 8 -110mm</b><br/>AO Coupling - Barrel Ø5.0mm<br/>Green Code<br/>Cod.: 09.07.05.08113</p>       |    | <p>26 <b>Threaded Plate Holder</b><br/>3.5mm - Lock<br/>Cod.: 09.11.01.35000</p>               |    |
| <p>19 <b>Shaft Screwdriver - Torx 15 - 110mm</b><br/>AO Coupling - Barrel Ø5.0mm,<br/>Blue/Red Code<br/>Cod.: 09.07.05.15117</p> |   | <p>27 <b>Threaded Plate Holder</b><br/>3.5mm - Lock - Long<br/>Cod.: 09.11.01.35001</p>        |   |
| <p>20 <b>Depth Gauge - 60mm</b><br/>Cod.: 09.08.01.00060</p>   |  | <p>28 <b>Bender - 2.7 / 3.5mm</b><br/>System Plates - Left<br/>Cod.: 09.13.00.12735</p>        |  |
| <p>21 <b>Gauge 60mm - Direct Measuring</b><br/>For Wire 150mm, Ø up to 1.6mm<br/>Cod.: 09.08.02.16060</p>                        |  | <p>29 <b>Bender - 2.7 / 3.5mm</b><br/>System Plates - Right<br/>Cod.: 09.13.00.22735</p>       |  |
| <p>22 <b>Sharp Hook - Small</b><br/>Cod.: 09.09.01.00000</p>   |  | <p>30 <b>Bender - 3.5 / 4.5mm</b><br/>Reconstruction Plates<br/>Cod.: 09.13.00.33545</p>       |  |
| <p>23 <b>Reposition Forceps - Ratchet</b><br/>Broad - 135mm<br/>Cod.: 09.10.02.02135</p>   |  | <p>31 <b>Bender for Wires</b><br/>Ø up to 2.5mm<br/>Cod.: 09.13.01.00025</p>                   |  |
| <p>24 <b>Self-Centering Forceps</b><br/>Serrated Jaw 10mm - 190mm<br/>Cod.: 09.10.03.10190</p>                                   |  | <p>32 <b>Wire-Bending Pliers</b><br/>170mm<br/>Cod.: 09.14.01.00170</p>                        |  |

**33 Bending Pliers**  
For 2.7 / 3.5mm Plates - 230mm  
Cod.: 09.14.02.20230



**34 Bending Template**  
For 3.5mm Plates - 7 Holes  
Cod.: 09.15.01.35007



**35 Bending Template**  
For 3.5mm Plates - 9 Holes  
Cod.: 09.15.01.35009



**36 Bending Template**  
For 3.5mm Plates - 12 Holes  
Cod.: 09.15.01.35012



**37 Bending Template**  
For 3.5mm Reconstruction Plate  
12 Holes  
Cod.: 09.15.04.35012



**38 Bending Template**  
For 3.5mm Reconstruction Plate  
Curved - 12 Holes  
Cod.: 09.15.05.35012



**39 Hohmann Retractor - 8mm width**  
Small - Short Narrow Tip - 160mm  
Cod.: 09.16.01.08160



**40 Hohmann Retractor - 15mm width**  
Broad Shank - 160mm  
Cod.: 09.16.02.15160



**41 Periosteal Elevator - 6mm width**  
Curved Blade - Round Edges  
Cod.: 09.17.01.06000



**42 Torque Limiting Attachment**  
0.8 Nm - AO Coupling  
Cod.: 09.18.01.00008



**43 Torque Limiting Attachment**  
1.5 Nm, AO Coupling  
Cod.: 09.18.01.00015



**44 Push-Pull Reduction Device**  
For 3.5mm Plates  
Cod.: 09.28.01.00035



**45 Screw Extractor for Torx-8**  
AO Coupling  
Cod.: 09.41.01.00008



**46 Screw Extractor for Torx-15**  
AO Coupling  
Cod.: 09.41.01.00015



**47 Kirschner Wire - SS**  
Trocár / Round - Ø2.0 x 150mm  
Cod.: 17.02.01.20150



**48 Kirschner Wire - SS**  
Threaded Tip - Ø1.6 x 150mm  
Cod.: 17.02.03.16150





# Small Fragments Surgical Technique

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