Compact 2.4 UniLOCK.
Reconstruction system for the mandible.

Technique Guide
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Warning
This description alone does not provide sufficient background for direct use of the instrument set. Instruction by a surgeon experienced in handling these instruments is highly recommended.
Properties and Advantages

Compact 2.4 UniLOCK

Combines the advantages of plate and screw osteosynthesis with the principles of Locked Internal Fixation.

Locked fixation

- Threads in the plate hole and screw head enable screws to be tightly and permanently locked
- Reduced hazard of screw loosening
- Stability of fixation is increased in the case of limited space following resection, poor bone quality or transplants
- Simplified reconstructive surgery, as it is not always essential to achieve perfect adaptation of the plate (implant stability does not depend on immediate plate-to-bone contact)

Two fixation options for a universal plate

- Flat plate and screw head profile
- Free selection of lockable and non-lockable screws for fixation adapted for the specific indication
- Colour-coded UniLOCK Screws for stable locking:
  - Ø 2.4 mm (violet)
  - Ø 3.0 mm (turquoise)
- MF Cortex Screws for angulation and compression:
  - Ø 2.4 mm (golden)
Indications and Contraindications

Trauma

Comminuted fractures, defect fractures and instable and infected mandibular fractures.

Reconstructive surgery

Bridging osteosynthesis with or without bone graft, both for primary and secondary reconstructions (tumour resections, pseudoarthrosis).

The load-bearing function of the UniLOCK 2.4 Plate without bone graft can only be ensured for a limited period; the implantation of a bone graft at a later date is therefore necessary to support the plate (see also Prein, p. 168).

Sets

Module Compact 2.4 UniLOCK

Standard module 3/3 to store system-specific instruments and implants. (Set no. 01.504.034)

Standard Instrument Tray Compact 2.4 Mandible

Standard instrument tray 3/3 to store instruments that can be used for a range of systems. (Set no. 01.502.093)

Instrument Tray for Transbuccal Instrument Set

Additional instrument tray 1/3 to store transbuccal instrument sets for minimally invasive surgery. (Set no. 01.502.833)
Implants and Instruments

**UniLOCK Reconstruction Plate 2.4 (449.6XX)**

With threaded plate hole for stable locking of UniLOCK screws Ø 2.4 and 3.0 mm. The plate functions like an external fixator, applied internally. UniLOCK 2.4 Plate holes also allow the use of MF Cortex Screws in angulation.

UniLOCK Plates are available straight, angled, with a condylar head or double angled.

Plate thickness: 2.5 mm, plate width: 8.0 mm, hole spacing: 8.0 mm

**UniLOCK Screws Ø 2.4 and 30 mm, self-tapping (497.6XX)**

With a threaded screw head to allow stable locking in the UniLOCK Reconstruction Plate. This increases the fixation stability and reduces the risk of the screw loosening. As the stability of the implant does not depend on an immediate plate-to-bone contact, perfect adaptation of the plate to the underlying bone is not essential in all cases.

<table>
<thead>
<tr>
<th>Screw colour</th>
<th>violet</th>
<th>turquoise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread diameter</td>
<td>Ø 2.4 mm</td>
<td>Ø 3.0 mm</td>
</tr>
<tr>
<td>Core diameter</td>
<td>Ø 1.8 mm</td>
<td>Ø 2.4 mm</td>
</tr>
<tr>
<td>Drill bit for threaded hole</td>
<td>Ø 1.8 mm</td>
<td>Ø 2.4 mm</td>
</tr>
</tbody>
</table>

**MF Cortex Screw Ø 2.4 mm, self-tapping (401.5XX)**

<table>
<thead>
<tr>
<th>Screw colour</th>
<th>golden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread diameter</td>
<td>Ø 2.4 mm</td>
</tr>
<tr>
<td>Core diameter</td>
<td>Ø 1.8 mm</td>
</tr>
<tr>
<td>Drill bit for threaded hole</td>
<td>Ø 1.8 mm</td>
</tr>
<tr>
<td>Drill for gliding hole</td>
<td>Ø 2.4 mm</td>
</tr>
<tr>
<td>Emergency screw, blue</td>
<td>Ø 2.7 mm</td>
</tr>
</tbody>
</table>

**Threaded Drill Sleeves (397.441/397.442)**

For drill bits: Ø 1.8 and 2.4 mm

**Bending Screw (497.689)**
Surgical Technique

1 Exposure

Expose the fracture or the area to be resectioned.

2 Select plate

The plate length should be selected so that at least three UniLOCK Screws 2.4 or 3.0 mm can be inserted at 1 cm from the fracture or planned osteotomy line on both sides of the defect. Four screws on each side of the defect enhance the stability of the fixation. Use the Bending Template (329.400) to determine the correct plate length.
3
Cut plate

The plate can be cut to the appropriate length with one hand and without the need to apply force using Shortcut 2.4 (391.967).

- Slot the first Shortcut over the plate and the second from the other direction
- The two Shortcut elements should be touching each other
- Close grips with one hand

4
Insert bending screws

Before contouring the plate, insert bending screws (497.689) into those plate holes where UniLOCK screws $\phi$ 2.4 or 3.0 mm will be inserted later.

Bending screws prevent the plate holes from being deformed when bending and ensure a correct seating of the UniLOCK screw.
5 Contour plates

Contour the plate to the bending template using the bending pliers with nose (329.142) and/or bending iron (397.371).

The bending pliers with nose allow
– all 2.4 plates to be adapted to the mandible,
– simple and precision control of the bending process,
– the plate to be bent with only minimal force.

If using UniLOCK screws it is not necessary to perfectly adapt the UniLOCK plates. These screws ensure plate stability without relying on contact between the plate and the underlying bone.

**Note:** Having contoured the plate, remove the bending screws.
**Bending sequence**

*First bend the edges of the plate* with the pliers. Each segment can only be bent to a certain extent in order to minimise the risk of breaking the plate.

*Then bend the surface* of the plate: The cylindrical shape and a clear view allow accurate bending of the plate.

Bend the last plate hole with the nose of the pliers. This allows shaping of even very tight curves.

*If necessary, turn the plate with the bending iron.*
6 Select screw

Either locking screws (UniLOCK screws ∅ 2.4 and 3.0 mm) or non-locking screws (MF cortex screws ∅ 2.4 mm) or a combination of both screw types may be used to fixate the UniLOCK plate.

Use MF cortex screws for situations where a screw hole cannot be predrilled at a 90° angle for anatomical or accessibility reasons.

7 Position plate

Place the plate on the affected area.

Note: In the case of trauma at least three screws should be inserted in each side of the fracture. In the case of tumour resection, at least four screws should be inserted in each side of the defect.
8
Drill screw holes

First drill the holes directly on or adjacent to the osteotomy or fracture line.

When using UniLOCK screws it is important that the drill hole is centred in the plate hole at a 90° angle to ensure precise locking of the screw in the plate hole. For this purpose insert the threaded drill sleeve into the corresponding plate hole.

For pre-drilling UniLOCK screws Ø 2.4 mm use drill sleeve 1.8 (397.441) and the Ø 1.8 mm drill bit.

For pre-drilling UniLOCK screws Ø 3.0 mm use drill sleeve 2.4 (397.442) and the Ø 2.4 mm drill bit.

If MF cortex screws Ø 2.4 mm are applied, use the double drill guide 2.4/1.8 (312.180) for pre-drilling. Angulation is possible.

**Note:** To pre-drill through a transbuccal access, the appropriate threaded drill sleeves from the transbuccal instrument set (set 01.502.833) should be used.
9

Determine screw length

Use the depth gauge (319.530) to determine the appropriate screw length.

10

Insert screws

Fractures: First insert the screws adjacent to the fracture line. Then insert all remaining screws.

The fixation of the fracture is now complete.

Tumour resections: In order to position the plate precisely, insert at least two screws on each side of the planned osteotomy line before resection.

Note: Steps 11 to 13 refer exclusively to tumour resections.
11
Carry out resection

Remove the plate while keeping a record of the arrangement and positioning of the screws removed from the plate holes. Carry out the resection.

12
Fix implants

Place the plate back onto the mandible in the correct position, securing with the screws that were previously removed; then insert all remaining screws.
13 Fix transplant

The transplant can be secured to the plate with the UniLOCK screws. This ensures the stability of fixation even during the bone reconstruction phase.
Bibliography

- AO/ASIF Video:
  - 21071 Fixation of a Comminuted Fracture of the Lateral Body of the Mandible with a 2.4 Locking Reconstruction Plate following Simplification with 2.0 Adaption Plates
  - 21072 Bridging of a Segmental Defect of the Lateral Body of the Mandible with a 2.4 Locking Reconstruction Plate
  - 21076 The Transbuccal System
  - 90071 Bending of the 2.4 UniLOCK Reconstruction Plate

For further information: www.aovideo.ch