Procedure Specific Plates for Osteotomies, Arthrodeses and Fractures of the Foot

Variable Angle LCP
Forefoot/Midfoot System 2.4/2.7

Surgical Technique
This description alone does not provide sufficient background for direct use of DePuy Synthes products. Instruction by a surgeon experienced in handling these products is highly recommended.

Processing, Reprocessing, Care and Maintenance
For general guidelines, function control and dismantling of multi-part instruments, as well as processing guidelines for implants, please contact your local sales representative or refer to:
http://emea.depuy synthes es.com/hcp/reprocessing-care-maintenance
For general information about reprocessing, care and maintenance of Synthes reusable devices, instrument trays and cases, as well as processing of Synthes non-sterile implants, please consult the Important Information leaflet (SE_023827) or refer to:
http://emea.depuy synthes es.com/hcp/reprocessing-care-maintenance
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Variable Angle LCP Forefoot/Midfoot System 2.4/2.7
Procedure specific plates for osteotomies, arthrodeses and fractures of the foot

Features and Benefits

The system consists of general and procedure-specific plates, variable angle locking and cortex screws, and a compression feature, to aid in reconstructive foot surgery. The implants are available in stainless steel and titanium alloy.

**Compression feature**
Compression holes used with compression wires and forceps allow for tactile compression up to 4 mm.

**Variable angle**
Screw holes allow up to 15° off-axis screw angulation in all directions.

**Reduced soft tissue irritation**
Low profile plates with rounded edges and highly polished surface reduce soft tissue irritation.
Variable Angle (VA) Locking Plates for the Forefoot and Midfoot

<table>
<thead>
<tr>
<th>Plate Type</th>
<th>Image</th>
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</thead>
<tbody>
<tr>
<td>Straight Fusion Plate 2.4/2.7, VA locking</td>
<td>![Image]</td>
</tr>
<tr>
<td>L-Fusion Plate 2.4/2.7, VA locking</td>
<td>![Image]</td>
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<tr>
<td>T-Fusion Plate 2.4/2.7, VA locking</td>
<td>![Image]</td>
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<tr>
<td>Cloverleaf Fusion Plate 2.4/2.7, VA locking</td>
<td>![Image]</td>
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<tr>
<td>X-Plate 2.4/2.7, VA locking</td>
<td>![Image]</td>
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<tr>
<td>MTP Fusion Plates</td>
<td>![Image]</td>
</tr>
<tr>
<td>(refer to Surgical Technique 036.001.234)</td>
<td></td>
</tr>
<tr>
<td>TMT Fusion Plates</td>
<td>![Image]</td>
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<tr>
<td>(refer to Surgical Technique 036.001.238)</td>
<td></td>
</tr>
<tr>
<td>Opening Wedge Plates</td>
<td>![Image]</td>
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<tr>
<td>(refer to Surgical Technique 036.001.236)</td>
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</tr>
</tbody>
</table>
In 1958, the AO formulated four basic principles, which have become the guidelines for internal fixation\(^1,2\).

**Anatomic reduction**
Fracture reduction and fixation to restore anatomical relationships.

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

**Stable fixation**
Fracture fixation providing absolute or relative stability, as 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.

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Indications and Contraindications

**Indications**
The Straight Fusion Plates, T-Fusion Plates, L-Fusion Plates, Cloverleaf Fusion Plates and X-Plates of the Variable Angle LCP Forefoot/Midfoot System 2.4/2.7 are indicated for fractures, deformations, revisions and replantations of bones (e.g. tarsals, metatarsals and phalanges) and bone fragments, particularly in osteopenic bone.

**Contraindications**
No specific contraindications.
The plates included in the Variable Angle LCP Forefoot/Midfoot System 2.4/2.7 aid in reconstructive foot surgery by allowing controlled compression with the use of compression wires and compression forceps.

**Compression feature**
- Allows for up to 4 mm of compression
- Tactile compression
- *Designed* within the plate to reduce additional soft tissue dissection
- Allows for final screw fixation after compression is achieved

**Compression wires**
- 1.6 mm diameter, 150 mm overall length
- Seven thread lengths: 10, 15, 20, 25, 30, 35 and 40 mm
- Stop feature allows for quick and easy preliminary plate fixation, which eliminates the need for plate holding forceps or another hand to hold the plate to the bone
- Spherical stop:
  - Designed to be seated on top of compression wire holes and compression slots, and inside variable angle LCP holes
  - Allows for off-axis wire insertion while maintaining the compression feature capability
- Material: Cobalt chromium alloy that is stiffer than conventional stainless steel

**Compression forceps**
- Spherical shaped recess matches the spherical stops on the compression wires, which ensures the forceps grasp the stops regardless of the angle in which the wires were inserted
- Locking ratcheting mechanism holds compression during insertion of fixation screws
- Simple lightweight design does not require holding during insertion of fixation screws
1. Position plate

Place the plate on the bone, ensuring that the plate is placed appropriately according to the specific procedure.

2. Insert compression wires

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>03.211.410.01–</td>
<td>Compression Wire Ø 1.6 mm,</td>
</tr>
<tr>
<td>03.211.440.01 length 150 mm,</td>
<td></td>
</tr>
<tr>
<td>thread length 10–40 mm</td>
<td></td>
</tr>
</tbody>
</table>

Estimate the appropriate thread length needed for the plate and bone combination. Bicortical fixation is recommended.

Using a wire driver, insert the compression wire through the compression wire hole and through both bone cortices.

**Precaution:** To minimize stripping of the bone threads, slow the insertion once the spherical stop of the wire gets close to the plate. Slowly control the insertion to achieve good compression of the wire to the plate and to the bone. High power insertion and stripping of the bone threads can lead to loosening of the compression wires and reduced compression.

Insert the second compression wire into the far side of the slot.
3. Compress using forceps

**Instrument**

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>03.211.400</td>
<td>Compression Forceps for use with Compression Wire</td>
</tr>
</tbody>
</table>

Move the ratcheting switch so the forceps ratchet when closing preventing the spring from opening the forceps.

Place the compression forceps in position, ensuring that the arms are around the compression wire spheres.

Compress by squeezing the handles.

**Precaution:** Compression is tactile, but be careful not to over compress. This may cause the compression wires to strip out of the bone.

When the ratcheting mechanism is in the correct position, compression can be maintained without holding the forceps. This leaves the hands free for image intensifier control of the compression gap closure and for inserting final fixation screws.

**Note:** Ensure a screw is inserted on each side of the osteotomy/fusion site before removing the compression forceps.
The plate holes of the Variable Angle LCP Technology 2.4/2.7 accept 2.4 mm and 2.7 mm Variable Angle (VA) Locking Screws.

Screws can be inserted using two different techniques:
- Variable angle technique
- Pre-defined nominal angle technique

**Variable angle technique**
To drill variable angle holes at a +/-15° deviation from the nominal trajectory of the locking hole, insert the tip of the conical VA-LCP drill sleeve (03.211.003/03.110.023) and key into the cloverleaf design of the VA-LCP hole.

**Precaution:** It is important not to angulate more than 15° from the central axis of the screw hole. Overangulation may result in difficulty while locking the screw and inadequate screw locking.

**Pre-defined nominal angle technique**
The fixed-angle VA-LCP drill sleeve (03.211.004/03.110.024) only allows the drill bit to follow the nominal trajectory of the locking hole.
### Sets

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.211.X01</td>
<td>VA-/Cortex Screws 2.4, in Modular Tray, Vario Case System</td>
</tr>
<tr>
<td>or/and 01.211.X02</td>
<td>VA-/Cortex Screws 2.7, in Modular Tray, Vario Case System</td>
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<tr>
<td>01.211.X03</td>
<td>General Fusion Plates VA 2.4/2.7, in Modular Tray, Vario Case System</td>
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<tr>
<td>01.211.103</td>
<td>Instruments VA 2.4/2.7, in Modular Tray, Vario Case System</td>
</tr>
<tr>
<td>01.211.101</td>
<td>Compression System VA 2.4/2.7, in Modular Tray, Vario Case System</td>
</tr>
</tbody>
</table>

Select the plate according to the arthrodesis, osteotomy or fracture pattern and the anatomy of the patient.

### Note:
This technique guide describes the application of VA locking plates for various indications in the forefoot and midfoot of the “Variable Angle LCP Forefoot/Midfoot System 2.4/2.7” using a Cloverleaf Fusion Plate 2.4/2.7, VA Locking, 4 holes (02.211.252). Familiarity with the use of LCP plates or instruction from an experienced surgeon is recommended (see the Synthes surgical technique for LCP Plates, Art. No. 036.000.019).

X = 2: Stainless steel  
X = 4: TAN
1a. Prepare joint surface

Remove the cartilage and prepare the joint surface for an arthrodesis. The surface of the joint can be manipulated to achieve the desired correction.

1b. Open osteotomy

Create an osteotomy starting from the medial side. Do not cut through the bone leaving the lateral cortex intact.

1c. Reduce fracture

Reduce the fracture under the image intensifier and if necessary, fix with Kirschner wires or reduction forceps. The reduction method will be fracture-specific.
2. Contour plate

**Instrument**

| 03.211.005 | Bending Pliers for VA Locking Plates |

The general fusion plates can be contoured to fit the specific anatomy and fixation options.

The bending pliers are designed to protect the variable angle holes during contouring. The feature on the pliers lines up with the cloverleaf design in the plate. Two pliers are used to contour the plate.

**Precaution:** If possible, bend the plate between the VA holes. Do not deform the threaded part of the holes or over-bend the plates during bending as this may adversely affect insertion of VA locking screws.

**Warning:** Do not repeatedly bend the plates back and forth as this may weaken the plate.
3. Position plate

Position the plate over the osteotomy, the joint or over the fracture gap. If necessary, fix provisionally with Kirschner wires or reduction forceps.

Place the plate on the bone, ensuring that it is placed appropriately according to the specific procedure.
4. Apply reduction and compression

4a. Insert compression wires

**Instruments**

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>03.211.410.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 10 mm</td>
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<tr>
<td>03.211.415.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 15 mm</td>
</tr>
<tr>
<td>03.211.420.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 20 mm</td>
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<tr>
<td>03.211.425.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 25 mm</td>
</tr>
<tr>
<td>03.211.430.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 30 mm</td>
</tr>
<tr>
<td>03.211.435.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 35 mm</td>
</tr>
<tr>
<td>03.211.440.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 40 mm</td>
</tr>
</tbody>
</table>

Estimate the appropriate thread length needed for the plate and bone combination. Bicortical fixation is recommended. Using a wire driver, insert the compression wire through the compression wire hole and through both bone cortices.

**Precaution:** To minimize stripping of the bone threads, slow the insertion once the sphere of the wire gets close to the plate. Slowly control the insertion to achieve good compression of the wire to the plate and to the bone. At this point, there should be sufficient amount of force holding the plate to the bone.

For the select plates in the system with a compression slot, insert the second compression wire into the far side of the slot.
4b. Compress using forceps

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Place the compression forceps in position, ensuring that the arms are around the compression wire spheres.

Compress by squeezing the handles.

**Precaution:** Compression is tactile, but be careful not to over compress. This may cause the compression wires to strip out of the bone.

When the ratcheting mechanism is in the correct position, compression can be maintained without holding the forceps. This leaves the hands free for image intensifier control of the compression gap closure and for final fixation screws.
5. Pre-drill for VA locking screws

### Instruments – VA screws 2.7 mm

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>310.534</td>
<td>Drill Bit Ø 2.0 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>03.211.003</td>
<td>VA-LCP Drill Sleeve 2.7, conical, for Drill Bits Ø 2.0 mm</td>
</tr>
<tr>
<td>03.211.004</td>
<td>VA-LCP Drill Sleeve 2.7, coaxial, for Drill Bits Ø 2.0 mm</td>
</tr>
<tr>
<td>323.260</td>
<td>Universal Drill Guide 2.7</td>
</tr>
<tr>
<td>03.111.005</td>
<td>Depth Gauge for Screws Ø 2.0 to 2.7 mm, measuring range up to 40 mm</td>
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### Instruments – VA screws 2.4 mm

<table>
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<tr>
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<tbody>
<tr>
<td>310.509</td>
<td>Drill Bit Ø 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>03.110.023</td>
<td>VA-LCP Drill Sleeve 2.4, conical, for Drill Bits Ø 1.8 mm</td>
</tr>
<tr>
<td>03.110.024</td>
<td>VA-LCP Drill Sleeve 2.4, coaxial, for Drill Bits Ø 1.8 mm</td>
</tr>
<tr>
<td>323.202</td>
<td>Universal Drill Guide 2.4</td>
</tr>
<tr>
<td>03.111.005</td>
<td>Depth Gauge for Screws Ø 2.0 to 2.7 mm, measuring range up to 40 mm</td>
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</tbody>
</table>

Determine the size of the screws to be used, 2.4 or 2.7 mm, and whether they will be inserted at a variable angle (5a) or at the pre-defined nominal angle (5b).
5a. Pre-drill using variable angle technique

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<th>Instruments – VA screws 2.7 mm</th>
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<td>03.211.003</td>
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<td>03.110.023</td>
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<td>03.111.005</td>
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</table>

Variable angle locking screws allow for manipulation around the independent lag screw.

Insert and lock the VA-LCP drill sleeve tip into the clover-leaf design of the VA-LCP hole. The cone will self retain in the hole.
Use the 2.0 mm drill bit (2.7 mm VA screw) or the 1.8 mm drill bit (2.4 mm VA screw) to drill at the desired angle and to the desired depth.

The cone of the drill sleeve allows the drill bit to be angled up to 15° around the central axis of the locking hole.

**Precaution:** To ensure that the drill guide is locked correctly, do not angle the drill bit in excess of +/-15° from the nominal trajectory of the hole.

To achieve the desired angle, verify the drill bit angle and depth under image intensifier control. If incorrect, drill at a different angle and verify again under image intensification.

Use the according depth gauge to measure the correct screw length.
5b. Pre-drill using pre-defined nominal angle technique

Instruments – VA screws 2.7 mm

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<tbody>
<tr>
<td>310.534</td>
<td>Drill Bit ∅ 2.0 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
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<tr>
<td>03.211.004</td>
<td>VA-LCP Drill Sleeve 2.7, coaxial, for Drill Bits ∅ 2.0 mm</td>
</tr>
<tr>
<td>03.111.005</td>
<td>Depth Gauge for Screws ∅ 2.0 to 2.7 mm, measuring range up to 40 mm</td>
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Optional instrument

<table>
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<tbody>
<tr>
<td>323.260</td>
<td>Universal Drill Guide 2.7</td>
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Instruments – VA screws 2.4 mm

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<td>Drill Bit ∅ 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
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<td>03.110.024</td>
<td>VA-LCP Drill Sleeve 2.4, coaxial, for Drill Bits ∅ 1.8 mm</td>
</tr>
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<td>Depth Gauge for Screws ∅ 2.0 to 2.7 mm, measuring range up to 40 mm</td>
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Optional instrument

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</tr>
</thead>
<tbody>
<tr>
<td>323.202</td>
<td>Universal Drill Guide 2.4</td>
</tr>
</tbody>
</table>

Variable angle locking screws and standard locking screws can be inserted into the plate at the predefined hole angle or coaxial.
Insert and lock the VA-LCP drill sleeve tip into the clover-leaf design of the VA-LCP hole. The coaxial drill guide will self retain in the hole.

Use the 2.0 mm drill bit (for VA locking screw and standard 2.7 mm locking screws) or the 1.8 mm drill bit (for VA locking screw and standard 2.4 mm locking screws) to drill to the desired depth.

Verify the drill bit depth under image intensification.

Use the according depth gauge to measure the correct screw length.
6. Insert VA locking screws

**Instruments – VA screws 2.4/2.7 mm**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>314.467</td>
<td>Screwdriver Shaft, Stardrive, T8, self-holding</td>
</tr>
<tr>
<td>311.430</td>
<td>Handle with Quick Coupling, length 110 mm</td>
</tr>
<tr>
<td>or 03.111.038</td>
<td>Handle with Quick Coupling</td>
</tr>
</tbody>
</table>

Insert the correct length variable angle locking screw manually using the screwdriver shaft and handle with quick coupling. Insert the screw until the screw head is seated (with limited force) in the variable angle locking hole.

**Note:** Ensure a screw is inserted on each side of the osteotomy/fusion site before removing the compression forceps

**Precaution:** Do not over-tighten screws. This allows the screws to be easily removed should they not be in the desired position.

Insert additional screws as needed.

Confirm proper reconstruction, screw placement and screw length under image intensification.
7. Lock VA locking screws

<table>
<thead>
<tr>
<th>Instruments – VA screws 2.4/2.7 mm</th>
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<tbody>
<tr>
<td>314.467</td>
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<tr>
<td>03.110.002</td>
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<tr>
<td>03.110.005</td>
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</tbody>
</table>

Use the 1.2 Nm torque limiting attachment (TLA) to perform the final locking step for variable angle locking screws. The torque limiting attachment attaches to the T8 Stardrive screwdriver shaft and the blue handle of the torque limiting attachment.

After appropriate screw angle and screw length has been finalized, manually insert the screw using the TLA assembly.

Use of the TLA is mandatory for variable angle locking holes to ensure the correct amount of torque is applied when inserting the screws.

With this final locking step, the screws are securely locked in the plate to achieve maximum strength of the plate-screw interface.

Remove the compression wires.
8. Optional: Insert cortex screw and independent cortex screw

**Instruments – cortex screws 2.7 mm**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>310.534</td>
<td>Drill Bit Ø 2.0 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>310.260</td>
<td>Drill Bit Ø 2.7 mm, length 100/75 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>323.260</td>
<td>Universal Drill Guide 2.7</td>
</tr>
<tr>
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<td>Depth Gauge for Screws Ø 2.0 to 2.7 mm, measuring range up to 40 mm</td>
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<td>03.111.038</td>
<td>Handle with Quick Coupling</td>
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**Instruments – cortex screws 2.4 mm**

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<tr>
<td>310.509</td>
<td>Drill Bit Ø 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>310.530</td>
<td>Drill Bit Ø 2.4 mm, length 100/75 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>323.202</td>
<td>Universal Drill Guide 2.4</td>
</tr>
<tr>
<td>03.111.005</td>
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<tr>
<td>314.467</td>
<td>Screwdriver Shaft, Stardrive, T8, self-holding</td>
</tr>
</tbody>
</table>
Determine where 2.4 mm or 2.7 mm cortex screws will be used in the combi-holes of the plate.

For 2.4 mm cortex screws, use the 2.4 universal drill guide in the unthreaded part of the hole. Pre-drill the screw hole either neutrally or off-center with the 1.8 mm drill bit.

For 2.7 mm cortex screws, use the 2.7 universal drill guide in the unthreaded part of the hole. Pre-drill the screw hole either neutrally or off-center with the 2.0 mm drill bit.

Determine the screw length with the depth gauge and insert the screw.

**Note:** Insert additional independent cortex screws depending on the corresponding indication and situation. To drill a gliding hole for compression, use the 2.7 mm drill bit (for 2.7 mm cortex screws) or the 2.4 mm drill bit (for 2.4 mm cortex screws) with the double drill guide.
9. Ensure proper reconstruction

Ensure proper joint reconstruction, screw placement and screw length under image intensification. Verify that the screws are not in the joint or in the soft tissue.
## Instruments – VA screws 2.4/2.7 mm

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>314.467</td>
<td>Screwdriver Shaft, Stardrive, T8, self-holding</td>
</tr>
<tr>
<td>03.111.038</td>
<td>Handle with Quick Coupling</td>
</tr>
</tbody>
</table>

**Warning:** To remove locking screws, first unlock all locking screws before removing them completely. Otherwise, the plate may rotate and damage the soft tissue.
Variable angle locking screws (VA-LCP) 2.7 mm

<table>
<thead>
<tr>
<th>Article Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0X.211.010 – 040</td>
<td>VA Locking Screw Stardrive Ø 2.7 mm (head 2.4), self-tapping, length 10–40 mm</td>
</tr>
<tr>
<td>0X.211.042S – 060S</td>
<td>VA Locking Screw Stardrive Ø 2.7 mm (head 2.4), self-tapping, length 42–60 mm, sterile</td>
</tr>
</tbody>
</table>

Threaded, rounded head locks securely into the threaded VA-LCP holes to provide angular stability at angles determined by the surgeon.

Also securely locks into standard locking holes (LCP) of the plate at the pre-defined angle.

**Note:** For final locking, the 1.2 Nm TLA torque limiting attachment is required.

Optional:

Variable angle locking screws (VA-LCP) 2.4 mm

<table>
<thead>
<tr>
<th>Article Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0X.210.106 – 140</td>
<td>VA Locking Screw Stardrive Ø 2.4 mm, self-tapping, length 6–40 mm</td>
</tr>
<tr>
<td>0X.210.142S – 160S</td>
<td>VA Locking Screw Stardrive Ø 2.4 mm, self-tapping, length 42–60 mm, sterile</td>
</tr>
</tbody>
</table>

All non-sterile screws are also available sterile packed. Add suffix "S" to article number to order sterile product.

X = 2: Stainless steel
X = 4: TAN
### Cortex screws 2.7 mm

<table>
<thead>
<tr>
<th>Article Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X02.870 – 900</td>
<td>Cortex Screw Stardrive Ø 2.7 mm, self-tapping, length 10–40 mm</td>
</tr>
<tr>
<td>X02.962S – 969S</td>
<td>Cortex Screw Stardrive Ø 2.7 mm, self-tapping, length 42–60 mm, sterile</td>
</tr>
</tbody>
</table>

For use in round or combi-holes.

### Cortex screws 2.4 mm

<table>
<thead>
<tr>
<th>Article Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X01.756 – 790</td>
<td>Cortex Screw Stardrive Ø 2.4 mm, self-tapping, length 6–40 mm</td>
</tr>
<tr>
<td>OX.210.942S – 960S</td>
<td>Cortex Screw Stardrive Ø 2.4 mm, self-tapping, length 42–60 mm, sterile</td>
</tr>
</tbody>
</table>

### Optional: Locking head screws 2.4/2.7 mm

<table>
<thead>
<tr>
<th>Article Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X12.806 – 830</td>
<td>Locking Screw Stardrive Ø 2.4 mm, self-tapping, length 6–30 mm</td>
</tr>
<tr>
<td>X02.206 – 260</td>
<td>Locking Screw Stardrive Ø 2.7 mm (head LCP 2.4), self-tapping, length 6–60 mm</td>
</tr>
</tbody>
</table>

All non-sterile screws are also available sterile packed.
Add suffix “S” to article number to order sterile product.

X = 2: Stainless steel
X = 4: TAN
### Straight Fusion Plates 2.4/2.7, VA locking

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Holes</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0X.211.262</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>0X.211.263</td>
<td>4</td>
<td>40</td>
</tr>
</tbody>
</table>

### L-Fusion Plates, 2.4/2.7, VA locking

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Shaft holes</th>
<th>Head holes</th>
<th>Length (mm)</th>
<th>Left/Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>0X.211.256</td>
<td>2</td>
<td>2</td>
<td>37</td>
<td>R</td>
</tr>
<tr>
<td>0X.211.257</td>
<td>2</td>
<td>2</td>
<td>37</td>
<td>L</td>
</tr>
<tr>
<td>0X.211.258</td>
<td>2</td>
<td>2</td>
<td>44</td>
<td>R</td>
</tr>
<tr>
<td>0X.211.259</td>
<td>2</td>
<td>2</td>
<td>44</td>
<td>L</td>
</tr>
<tr>
<td>0X.211.260</td>
<td>4</td>
<td>2</td>
<td>62</td>
<td>R</td>
</tr>
<tr>
<td>0X.211.261</td>
<td>4</td>
<td>2</td>
<td>62</td>
<td>L</td>
</tr>
</tbody>
</table>

### T-Fusion Plates, 2.4/2.7, VA locking

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Shaft holes</th>
<th>Head holes</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0X.211.253</td>
<td>2</td>
<td>2</td>
<td>35</td>
</tr>
<tr>
<td>0X.211.254</td>
<td>2</td>
<td>2</td>
<td>42</td>
</tr>
<tr>
<td>0X.211.255</td>
<td>4</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>0X.211.265</td>
<td>7</td>
<td>3</td>
<td>92</td>
</tr>
</tbody>
</table>

All plates are available non-sterile and sterile packed. Add suffix "S" to article number to order sterile product.

X = 2: Stainless steel
X = 4: TAN
### Cloverleaf Fusion Plates, 2.4/2.7, VA locking

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Shaft holes</th>
<th>Head holes</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0X.211.250</td>
<td>2</td>
<td>3</td>
<td>38</td>
</tr>
<tr>
<td>0X.211.251</td>
<td>2</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>0X.211.252</td>
<td>4</td>
<td>3</td>
<td>64</td>
</tr>
</tbody>
</table>

### X-Plates 2.4/2.7, VA locking

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Holes</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0X.211.201</td>
<td>4</td>
<td>23.5</td>
<td>15</td>
</tr>
<tr>
<td>0X.211.202</td>
<td>4</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>0X.211.203</td>
<td>4</td>
<td>32</td>
<td>20</td>
</tr>
<tr>
<td>0X.211.204</td>
<td>4</td>
<td>36</td>
<td>20</td>
</tr>
</tbody>
</table>

All plates are available non-sterile and sterile packed.
Add suffix "S" to article number to order sterile product.

- X = 2: Stainless steel
- X = 4: TAN
## Instruments

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>311.430</td>
<td>Handle with Quick Coupling, length 110 mm</td>
</tr>
<tr>
<td>314.467</td>
<td>Screwdriver Shaft, Stardrive, T8, self-holding</td>
</tr>
<tr>
<td>03.110.002</td>
<td>Torque Limiter, 1.2 Nm, with AO/ASIF Quick Coupling</td>
</tr>
<tr>
<td>03.110.005</td>
<td>Handle for Torque Limiters 0.4/0.8/1.2 Nm</td>
</tr>
<tr>
<td>03.111.005</td>
<td>Depth Gauge for Screws Ø 2.0 to 2.7 mm, measuring range up to 40 mm</td>
</tr>
<tr>
<td>03.111.038</td>
<td>Handle with Quick Coupling</td>
</tr>
<tr>
<td>03.211.001</td>
<td>Holding Pin for VA Locking Plates 2.4/2.7</td>
</tr>
</tbody>
</table>
### Instruments for insertion of 2.7 mm screws

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>310.260</td>
<td>Drill Bit Ø 2.7 mm, length 100/75 mm, 2-flute, for Quick Coupling</td>
<td><img src="image1.png" alt="Drill Bit" /></td>
</tr>
<tr>
<td>310.534</td>
<td>Drill Bit Ø 2.0 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
<td><img src="image2.png" alt="Drill Bit" /></td>
</tr>
<tr>
<td>323.260</td>
<td>Universal Drill Guide 2.7</td>
<td><img src="image3.png" alt="Drill Guide" /></td>
</tr>
<tr>
<td>03.211.003</td>
<td>VA-LCP Drill Sleeve 2.7, conical, for Drill Bits Ø 2.0 mm</td>
<td><img src="image4.png" alt="Drill Sleeve" /></td>
</tr>
<tr>
<td>03.211.004</td>
<td>VA-LCP Drill Sleeve 2.7, coaxial, for Drill Bits Ø 2.0 mm</td>
<td><img src="image5.png" alt="Drill Sleeve" /></td>
</tr>
</tbody>
</table>
**Instruments for insertion of 2.4 mm screws**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>310.509</td>
<td>Drill Bit Ø 1.8 mm, with marking, length 110/85 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>310.530</td>
<td>Drill Bit Ø 2.4 mm, length 100/75 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>323.202</td>
<td>Universal Drill Guide 2.4</td>
</tr>
<tr>
<td>03.110.023</td>
<td>VA-LCP Drill Sleeve 2.4, conical, for Drill Bits Ø 1.8 mm</td>
</tr>
<tr>
<td>03.110.024</td>
<td>VA-LCP Drill Sleeve 2.4, coaxial, for Drill Bits Ø 1.8 mm</td>
</tr>
</tbody>
</table>
## Instruments for compression

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.211.400</td>
<td>Compression Forceps for use with Compression Wire</td>
</tr>
<tr>
<td>03.211.410.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 10 mm</td>
</tr>
<tr>
<td>03.211.415.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 15 mm</td>
</tr>
<tr>
<td>03.211.420.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 20 mm</td>
</tr>
<tr>
<td>03.211.425.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 25 mm</td>
</tr>
<tr>
<td>03.211.430.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 30 mm</td>
</tr>
<tr>
<td>03.211.435.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 35 mm</td>
</tr>
<tr>
<td>03.211.440.01</td>
<td>Compression Wire Ø 1.6 mm, length 150 mm, thread length 40 mm</td>
</tr>
<tr>
<td>Additional instrument</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td>03.211.005</td>
<td>Bending Pliers for VA Locking Plates</td>
</tr>
</tbody>
</table>

![Bending Pliers for VA Locking Plates](image-url)
Torque, Displacement and Image Artifacts according to ASTM F 2213-06, ASTM F 2052-14 and ASTM F 2119-07

Non-clinical testing of worst case scenario in a 3 T MRI system did not reveal any relevant torque or displacement of the construct for an experimentally measured local spatial gradient of the magnetic field of 3.69 T/m. The largest image artifact extended approximately 169 mm from the construct when scanned using the Gradient Echo (GE). Testing was conducted on a 3 T MRI system.

Radio-Frequency-(RF)-induced heating according to ASTM F 2182-11a

Non-clinical electromagnetic and thermal testing of worst case scenario lead to peak temperature rise of 9.5 °C with an average temperature rise of 6.6 °C (1.5 T) and a peak temperature rise of 5.9 °C (3 T) under MRI Conditions using RF Coils (whole body averaged specific absorption rate [SAR] of 2 W/kg for 6 minutes [1.5 T] and for 15 minutes [3 T]).

Precautions: The above mentioned test relies on non-clinical testing. The actual temperature rise in the patient will depend on a variety of factors beyond the SAR and time of RF application. Thus, it is recommended to pay particular attention to the following points:

• It is recommended to thoroughly monitor patients undergoing MR scanning for perceived temperature and/or pain sensations.
• Patients with impaired thermoregulation or temperature sensation should be excluded from MR scanning procedures.
• Generally, it is recommended to use a MR system with low field strength in the presence of conductive implants. The employed specific absorption rate (SAR) should be reduced as far as possible.
• Using the ventilation system may further contribute to reduce temperature increase in the body.