Alignment Rod. For intraoperatively confirming correction of the mechanical axis of the leg.
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*Image intensifier control*
Alignment Rod. For intraoperatively confirming correction of the mechanical axis of the leg.

The Alignment Rod is designed to confirm correction of the mechanical axis of the leg. It consists of a metal rod and two stands (large and small). The Alignment Rod is used with an image intensifier to ensure the accuracy of surgery.

Alignment Rod
The metal rod consists of three sections that can be assembled for adaptation to individual leg lengths during surgery. Threaded connections facilitate stable assembly of the individual parts. After surgery, the rod can be disassembled into three shorter lengths for reprocessing and storage.
**Large stand**
The large stand, with its triangular shape, allows placement over the ankle joint. Two holes in the upper part of the stand allow placement of the metal rod in two different positions.

**Small stand**
The small stand is designed for the knee joint. It is adjusted to the position of the joint line and can be used to check the orientation of the knee joint line and the mechanical axis of the leg. It accepts a 2.0 mm K-wire for reference during image intensification. The small stand does not have handles.

**Handles**
Handles attach to the large stand to hold the Alignment Rod in the correct position, without hand exposure to the x-ray beam. The handles may be connected to the stand either parallel or perpendicular to the rod.

**K-wire**
To check the ankle joint line, insert a 2.0 mm K-wire into the stand at a right angle to the metal rod as reference during image intensification.
AO Principles

In 1958, the AO formulated four basic principles, which have become the guidelines for internal fixation.\textsuperscript{1} Those principles, as applied to the Synthes TomoFix Osteotomy System through the use of the Alignment Rod, are:

**Anatomic reduction**
Combi holes permit the insertion of 4.5 cortex screws through the plate at an eccentric angle, to obtain compression of the osteotomy gap.

**Stable fixation**
The use of locking screws creates a fixed-angle construct, providing angular stability.

**Preservation of blood supply**
The temporary use of spacers reduces plate-to-bone contact, helping to preserve the periosteal blood supply. The tapered end facilitates minimally invasive insertion.

**Early, active mobilization**
Plate features combined with AO technique create an environment for bone healing, expediting a return to normal function.

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Preparation

The alignment rod should only be used by surgeons who are familiar with the principles of correct limb alignment.

Preparation for surgery

Required set

<table>
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<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>01.108.000</td>
<td>TomoFix Instrument and Implant Set</td>
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Required instruments

<table>
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<th>Code</th>
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<tr>
<td>03.108.030</td>
<td>Alignment Rod</td>
</tr>
<tr>
<td>03.108.031</td>
<td>Stand for Alignment Rod, with handles (large)</td>
</tr>
<tr>
<td>03.108.032</td>
<td>Small Stand for Alignment Rod</td>
</tr>
<tr>
<td>292.699</td>
<td>2.0 mm Kirschner Wire, threaded spade point tip, 280 mm</td>
</tr>
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- Preassemble the metal rod to the appropriate length
- Attach handles to the large stand in the desired position
- Insert the preassembled metal rod into the desired positioning holes of the two stands
- Insert Kirschner wires into the joint line holes of each stand
- Position the patient supine on a radiolucent table. Visualization of the complete leg with an image intensifier should be possible in the AP and lateral views.

Use during surgery

After performing the osteotomy or reducing the fracture, use the alignment rod to confirm that the mechanical axis of the limb has been restored.

Important:

Use an image intensifier with laser light localizer (parallax-free).

Position the leg for an exact AP image and ensure that all measurements are performed with the same leg rotation.

Note: For more information please refer to the appropriate TomoFix Technique Guide.
1

**Placement**

Place the preassembled alignment rod over the leg. Ensure the stands are positioned over the ankle and knee joint. To avoid measuring errors, make sure that the only contact between rod and limb is in the hip region.

2

**Proximal placement**

Align the proximal end of the metal rod with the center of the femoral head. Verify with an image intensifier.

**Technique tip:** Mark the skin at this point to allow additional measurements without using the image intensifier to relocate the center of the femoral head.
3
Distal placement

Align the distal end of the metal rod with the center of the ankle joint. Verify with an image intensifier.

Technique tip: Mark the skin at this point to allow additional measurements without using the image intensifier to relocate the center of the ankle joint.

4
Verify knee joint line

Verify that the projected axis line passes the knee joint in accordance with the preoperative plan. Confirm that the knee joint line is oriented correctly with the wire in the small stand.
**Optional technique**

Before performing an osteotomy, the knee must be in full extension; use the alignment rod to confirm this position. After placing the two stands over the appropriate joints, check the rod with an image intensifier. The anterior cortex of the femur and tibia should be parallel to the alignment rod.
Instruments

03.108.030  Alignment Rod

03.108.031  Stand for Alignment Rod (large)

03.108.032  Small Stand for Alignment Rod

292.699  2.0 mm Kirschner Wire, threaded spade point tip, 280 mm

Note: These instruments are included in the TomoFix Instrument and Implant Set (01.108.000).