LCP Medial Proximal Tibial Plate 4.5/5.0. Part of the Synthes LCP periarticular plating system.
Image intensifier control

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.depuysynthes.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.depuysynthes.com/hcp/reprocessing-care-maintenance
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LCP Medial Proximal Tibial Plate

4.5/5.0. Part of the Synthes LCP periarticular plating system.

The LCP Medial Proximal Tibial Plate 4.5/5.0 is part of the Synthes LCP periarticular plating system, which merges locking screw technology with conventional plating techniques.

LCP Periarticular Plating System
The LCP periarticular plating system is capable of addressing:
– complex fractures of the proximal tibia with the LCP Proximal Tibial Plate 4.5/5.0 or the LCP Medial Proximal Tibial Plate 4.5/5.0.
– complex fractures of the distal femur with the LCP Condylar Plate 4.5/5.0.
– complex fractures of the proximal femur with the LCP Proximal Femoral Plate 4.5/5.0 or the LCP Proximal Femoral Hook Plate 4.5/5.0.

Locking Compression Plate
The Locking Compression Plate (LCP) has combi-holes in the plate shaft that combine a dynamic compression unit (DCU) hole with a locking screw hole. The combi-hole provides the flexibility of axial compression and locking capability throughout the length of the plate shaft.
LCP Medial Proximal Tibial Plate

The LCP Medial Proximal Tibial Plate 4.5/5.0 is available in stainless steel and titanium and has a limited-contact shaft profile. The head and neck portions of the plate accept 5.0 mm cannulated locking screws and 5.0 mm cannulated conical screws. The screw hole pattern allows a raft of subchondral locking screws to buttress and maintain reduction of the articular surface. This provides fixed-angle support to the tibial plateau.

**Plate head**
- Anatomically contoured to approximate the anteromedial proximal tibia.
- Three convergent threaded screw holes accept cannulated locking screws Ø 5.0 mm or cannulated conical screws Ø 5.0 mm.
- Two 2.0 mm holes for preliminary fixation with Kirschner wires, or meniscal repair with sutures.

**Plate shaft**
- The two angled locking holes distal to the plate head accept cannulated locking screws Ø 5.0 mm or cannulated conical screws Ø 5.0 mm to secure the plate position. The hole angles allow the locking screws to converge with two of the three screws in the plate head.
- Combi-holes, distal to the angled locking holes, combine a DCU hole with a threaded locking hole. The combi-holes accept locking screws Ø 5.0 mm in the threaded portion of the hole and cortex screws Ø 4.5 mm in the DCU portion of the hole.
- Available with 4, 6, 8, 10, 12, 14, or 16 combi-holes in the plate shaft.
- Limited-contact profile.

Available in left and right plates
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.

**Stable fixation**
Fracture fixation providing absolute or relative stability, as required by the patient, the injury, and the personality of the fracture.

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

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

Indications
The LCP Medial Proximal Tibial Plates 4.5/5.0 are indicated to buttress metaphyseal fractures of the medial tibial plateau, split-type fractures of the medial tibial plateau, medial split fractures with associated depressions and split or depression fractures of the medial tibial plateau. The plates may also be used for fixation of the proximal quarter (lateral and medial) of the tibia, as well as segmental fractures of the proximal tibia.

The LCP Medial Proximal Tibial Plates 4.5/5.0 may also be used for fixation of nonunions and malunions of the medial proximal tibia and tibia shaft, as well as opening and closing wedge tibial osteotomies.

Contraindications
No specific contraindications.
1 Preparation and preoperative planning

Required sets

Plate Set LCP Medial Proximal Tibial Plates 4.5/5.0
Periarticular LCP Plating System Instrument Set
Cannulated Conical and Cannulated Locking Screw Set ∅ 5.0 and 7.3 mm
LCP Large Fragment Instrument Set
LCP Large Fragment Screw Set

Complete the preoperative radiographic assessment and prepare the preoperative plan. Determine plate length and instruments to be used.

Note: Determine proximal screw placement and screw lengths to ensure proper screw placement in the metaphysis.

Position the patient supine on a radiolucent operating table. Visualization of the proximal tibia under fluoroscopy in both the lateral and AP views is necessary.

Note: More detailed information on conventional and locked plating principles can be found in the Synthes Locking Compression Plate (LCP) surgical technique: DSEM/TRM/0115/0278

X-ray template for right LCP Medial Proximal Tibial Plates 4.5/5.0 (Art. No. 034.000.497)

X-ray template for left LCP Medial Proximal Tibial Plates 4.5/5.0 (Art. No. 034.000.500)
2
Reduce articular surface

Optional instruments

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>117.700</td>
<td>Instrument Set for Large Distractor in Sterilization Tray</td>
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<tr>
<td>01.301.000</td>
<td>Large External Fixator in Vario Case</td>
</tr>
<tr>
<td>394.350</td>
<td>Large Distractor</td>
</tr>
</tbody>
</table>

Note: Prior to reduction, application of an external fixator or large distractor may facilitate visualization and reduction of the joint.

Reduce the fracture fragments and confirm reduction using image intensification. Fragments may be reduced using independent Kirschner wires; however, Kirschner wire holes are also provided on the plate to help achieve provisional reduction, plate position, or fixation.

The locking screws do not provide interfragmentary or plate-to-bone compression; therefore, any desired compression must be achieved with traditional lag screws or cannulated conical screws 5.0 mm. The articular fragments must be reduced and compression must be obtained prior to applying the LCP Medial Proximal Tibial Plate with locking screws.

Note: To verify that independent lag screws will not interfere with plate placement, hold the plate to the bone.

Apply the distractor to assist in the visualization and reduction of the joint.
3

Determine plate position

Using anatomic landmarks and fluoroscopy, mount the plate on the intact or reconstructed plateau without attempting to reduce the distal portion of the fracture.
Mount the plate

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>324.174</td>
<td>Wire Guide 5.0, for Guide Wire Ø 2.5 mm</td>
</tr>
<tr>
<td>292.210</td>
<td>Kirschner Wire Ø 2.0 mm with trocar tip</td>
</tr>
</tbody>
</table>

Attach a wire guide to the central hole in the head of the plate. Insert a Kirschner wire Ø 2.0 mm through a Kirschner wire hole.

**Precautions:**
- Instruments and screws may have sharp edges or moving joints that may pinch or tear user’s glove or skin.
- Handle devices with care and dispose worn bone cutting instruments in an approved sharps container.

Readjust the plate position, if necessary. Place a second wire in the other Kirschner wire hole to prevent rotation of the plate and to secure provisional fixation of the plate to the tibial plateau.
4

Insert proximal provisional (conical) screw

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>310.243</td>
<td>Guide Wire ∅ 2.5 mm, with drill tip</td>
</tr>
<tr>
<td>319.701</td>
<td>Measuring Device for Cannulated Locking Screws and Cannulated Conical Screws ∅ 5.0 and 7.3 mm</td>
</tr>
</tbody>
</table>

**For predrilling in dense bone**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>310.634</td>
<td>Drill Bit ∅ 4.3 mm, cannulated, with Quick Coupling</td>
</tr>
</tbody>
</table>

**Insert guide wire**

While the plate is placed against the bone, insert the guide wire ∅ 2.5 mm through the wire guide in the central screw hole in the plate head. It is imperative to drill using fluoroscopy to ensure proper screw trajectory and screw placement. Advance the guide wire through to the lateral cortex or to the desired screw tip location.

Determine proper screw trajectory by using clinical examination and fluoroscopy to confirm:
- Guide wire trajectory in the proximal locking hole is parallel to the joint and the reduction is maintained.
- Screw and plate placement will be consistent with the preoperative plan.
- Alignment of the plate to the shaft of the tibia is correct in both the AP and lateral views. Placement of the plate at this point will determine final flexion/extension.

**Measure screw length**

Measure for screw length using the measuring device for cannulated screws.

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**Notes:**
- The measuring device must contact the end of the wire guide for an accurate measurement.
- Predrilling in dense bone
  The self-drilling, self-tapping flutes of the cannulated conical screws ∅ 5.0 mm make predrilling and pretapping unnecessary in most cases. If necessary, in dense bone, the lateral cortex can be predrilled with the cannulated drill bit ∅ 4.3 mm.
Insert proximal cannulated (conical) screw

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>314.050</td>
<td>Screwdriver, hexagonal, cannulated</td>
</tr>
<tr>
<td>338.490</td>
<td>Quick Coupling</td>
</tr>
<tr>
<td>314.230</td>
<td>Screwdriver Shaft, hexagonal, cannulated</td>
</tr>
</tbody>
</table>

Use the cannulated hexagonal screwdriver to remove the wire guide.

Insert the appropriate length cannulated conical screw Ø 5.0 mm in the central hole in the plate head to pull the plate to the bone and gain interfragmentary compression through the plate by using a power tool with the quick coupling and the cannulated screwdriver shaft.

Perform final tightening by hand using the hexagonal cannulated screwdriver.

**Notes:**
- Insert a screw that is approximately 5 mm shorter than the measurement from the measuring device.
- When interfragmentary compression is desired, use cannulated conical screws Ø 5.0 mm. Locking screws are not lag screws.
Secure plate to plateau

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>324.174</td>
<td>Wire Guide 5.0, for Guide Wire Ø 2.5 mm</td>
</tr>
<tr>
<td>310.243</td>
<td>Guide Wire Ø 2.5 mm, with drill tip</td>
</tr>
<tr>
<td>319.701</td>
<td>Measuring Device for Cannulated Locking Screws and Cannulated Conical Screws Ø 5.0 and 7.3 mm</td>
</tr>
<tr>
<td>314.050</td>
<td>Screwdriver, hexagonal, cannulated</td>
</tr>
</tbody>
</table>

Attach wire guides to the anterior and posterior holes in the head of the plate. Insert guide wires Ø 2.5 mm through these wire guides to the desired screw tip location.

Use the measuring device to measure for screw length. Use the hexagonal cannulated screwdriver to remove the wire guides.

Remove the Kirschner wires.
Insert cannulated locking screws

Insert the appropriate length cannulated locking screws Ø 5.0 mm into the bone with a power tool using the torque limiter, the quick coupling and the hexagonal cannulated screwdriver shaft.

Perform final tightening by hand using the hexagonal cannulated screwdriver shaft together with the quick coupling, the torque limiter and the handle for torque limiter. After one click, the optimum torque is reached.

Notes:

- If the torque limiter is unavailable, do not tighten the screws to the plate using a power tool. Perform final tightening by hand.
- Predrilling in dense bone
  The self-drilling, self-tapping flutes of the cannulated locking screws Ø 5.0 mm make predrilling and pretapping unnecessary in most cases. If necessary, in dense bone, the lateral cortex can be predrilled with the cannulated drill bit Ø 4.3 mm.

Once both the anterior and posterior locking screws are securely locked to the plate, the central cannulated conical screw Ø 5.0 mm may be removed and replaced with a third cannulated locking screw Ø 5.0 mm.
6
Reduce shaft to tibial plateau

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>398.810</td>
<td>Bone Holding Forceps, self-centering, speed lock or</td>
</tr>
<tr>
<td>398.813</td>
<td>Plate Holding Forceps, with Swivel Foot</td>
</tr>
<tr>
<td>321.120</td>
<td>Tension Device, articulated</td>
</tr>
</tbody>
</table>

Reduce the tibial plateau to the shaft of the tibia, using indirect reduction techniques whenever possible. Using atraumatic technique, secure the plate to the tibial shaft with bone holding forceps.

Confirm rotational alignment of the extremity by clinical examination.

Once reduction is satisfactory, and if it is appropriate based on the fracture morphology, the plate should be loaded in tension using the tension device.

**Note:** With multifragmentary fractures, it may not always be possible or desirable to achieve anatomic reduction of the fracture. However, in simple fracture patterns, the tension device may facilitate anatomic reduction. This device may be used to generate either compression or distraction.
7

Insert screws in plate shaft

In addition to having threaded locking holes, the plate functions similarly to DCP plates which offer the ability to axially compress fracture fragments. Therefore, a combination of cortex screws and locking screws may be used.

Notes:
- If a combination of cortex (1) and locking screws (2) is used, a cortex screw should be inserted first to pull the plate to the bone.
- If locking screws (1) have been used to fix the plate to a fragment, subsequent insertion of a cortex screw (2) in the same fragment without loosening and retightening the locking screw is not recommended.
7a

Insert cortex screws

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>323.460</td>
<td>Universal Drill Guide 4.5/3.2</td>
</tr>
<tr>
<td>310.290</td>
<td>Drill Bit ∅ 3.2 mm, 2-flute, for Quick Coupling</td>
</tr>
<tr>
<td>319.100</td>
<td>Depth Gauge for Screws ∅ 4.5 to 6.5 mm</td>
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<tr>
<td>03.400.102</td>
<td>Screwdriver Shaft 3.5, hexagonal, Stardrive SD25</td>
</tr>
<tr>
<td>03.400.112</td>
<td>Handle for Screwdriver Shaft 3.5, hexagonal, Stardrive SD25</td>
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</tbody>
</table>

Insert as many self-tapping cortex screws ∅ 4.5 mm as necessary into the distal portion of the plate.

**Note:** All of the cortex screws ∅ 4.5 mm must be inserted prior to insertion of locking screws ∅ 5.0 mm.

Use the universal drill guide to predrill for the cortex screws and drill through both cortices with the drill bit ∅ 3.2 mm. For the neutral position, press the drill guide down in the nonthreaded hole. To obtain compression, place the drill guide at the end of the nonthreaded hole away from the fracture. Do not apply downward pressure on the drill guide’s spring-loaded tip.

Measure for screw length using the depth gauge.

Select and insert the appropriate length cortex screw ∅ 4.5 mm. Perform final tightening by hand using the screwdriver shaft together with the handle for the screwdriver shaft.
7b
Insert locking screws

**Instruments**

<table>
<thead>
<tr>
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<tr>
<td>323.042</td>
<td>LCP Drill Sleeve 5.0, for Drill Bits Ø 4.3 mm</td>
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<tr>
<td>310.430</td>
<td>LCP Drill Bit Ø 4.3 mm with Stop</td>
</tr>
<tr>
<td>319.100</td>
<td>Depth Gauge for Screws Ø 4.5 to 6.5 mm</td>
</tr>
<tr>
<td>314.119</td>
<td>Screwdriver Shaft Stardrive 4.5/5.0, SD25</td>
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<tr>
<td>314.150</td>
<td>Screwdriver Shaft, hexagonal, Ø 3.5 mm</td>
</tr>
<tr>
<td>511.771</td>
<td>Torque Limiter, 4 Nm or</td>
</tr>
<tr>
<td>511.774</td>
<td>Torque Limiter, 4 Nm, for AO/ASIF Quick Coupling for Reamers</td>
</tr>
</tbody>
</table>

**For final tightening and locking**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>397.705</td>
<td>Handle for Torque Limiter Nos. 511.770 and 511.771 or</td>
</tr>
<tr>
<td>397.706</td>
<td>Handle for Torque Limiter No. 511.774</td>
</tr>
</tbody>
</table>

Attach the LCP drill sleeve to the locking hole in the plate shaft. Drill a hole using the LCP drill bit Ø 4.3 mm.

**Note:** Use of the drill sleeve is mandatory for screws to lock to the plate properly.
Surgical Technique

Remove the drill sleeve and determine the screw length with the depth gauge. Alternatively, read the drilled depth directly from the laser mark on the drill bit by shoving the stop ring down to the drill sleeve to make reading easier.

Insert the appropriate length locking screw ⌀ 5.0 mm by using a power tool with the torque limiter and the screwdriver shaft.

Perform final tightening by hand using the screwdriver shaft together with the torque limiter and the handle for torque limiter. After one click, the optimum torque is reached.

Repeat as necessary to insert additional locking screws.

**Note:** If the torque limiter is unavailable, do not tighten the screws to the plate using power. Perform final tightening by hand.

Examine the limb clinically and radiographically. It is important that the tibial plateau is in proper orientation to the tibial shaft.
## Insert cannulated locking screws in angled holes

### Instruments
- **324.174** Wire Guide 5.0, for Guide Wire Ø 2.5 mm
- **310.243** Guide Wire Ø 2.5 mm, with drill tip
- **319.701** Measuring Device for Cannulated Locking Screws and Cannulated Conical Screws Ø 5.0 and 7.3 mm
- **314.050** Screwdriver, hexagonal, cannulated
- **511.771** Torque Limiter, 4 Nm or
- **511.774** Torque Limiter, 4 Nm, for AO/ASIF Quick Coupling for Reamers
- **338.490** Quick Coupling
- **314.230** Screwdriver Shaft, hexagonal, cannulated

### For final tightening and locking
- **397.705** Handle for Torque Limiter Nos. 511.770 and 511.771 or
- **397.706** Handle for Torque Limiter No. 511.774

### For predrilling in dense bone
- **310.634** Drill Bit Ø 4.3 mm, cannulated, with Quick Coupling

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**Note:** Use the oblique locking positions to buttress a medial fragment.

If not already done, thread a wire guide into an angled locking hole. Insert a guide wire Ø 2.5 mm through the wire guide. Advance the guide wire until it reaches the desired screw tip location.

Measure for screw length using the measuring device. The correct length measurement will place the screw tip at the tip of the guide wire. Use the hexagonal, cannulated screwdriver to remove the wire guide.

**Note:** The measuring device must contact the end of the wire guide for an accurate measurement.
9

Implant removal

Unlock all screws from the plate, then remove the screws completely from the bone. This prevents simultaneous rotation of the plate when unlocking the last locking screw.

For details regarding implant removal refer to the surgical technique “Screw Extraction Set” DSEM/TRM/0614/0104.
Insert the appropriate length cannulated locking screws Ø 5.0 mm by using a power tool with the torque limiter, quick coupling and the hexagonal, cannulated screwdriver shaft.

Perform final tightening by hand using the hexagonal cannulated screwdriver shaft together with the quick coupling, the torque limiter and the handle for torque limiter. After one click, the optimum torque is reached.

Repeat steps for locking screw insertion for the remaining angled hole.

**Notes:**
- If the torque limiter is unavailable, do not tighten the screws to the plate using power. Perform final tightening by hand
- Predrilling in dense bone
  The self-drilling, self-tapping flutes of the cannulated locking screws Ø 5.0 mm make predrilling and pretapping unnecessary in most cases. If necessary, in dense bone, the lateral cortex can be predrilled with the cannulated drill bit Ø 4.3 mm.
**Screw length considerations**

When using the appropriate length screws in the angled locking holes, the screw tips should meet the proximal locking screws.

Suggested screw lengths to achieve desired screw convergence

Securely tighten all locking screws to lock them to the plate.
Instruments for Minimally Invasive Osteosynthesis

Hohmann Retractor Holder
The Hohmann retractor holder was developed to support minimally invasive, percutaneous plate osteosynthesis. Its design enables the reliable percutaneous insertion of plates. These characteristics make the Hohmann retractor holder the ideal instrument for use in combination with modern implant systems such as LCP and LISS.

- The Hohmann retractor holder allows visualization of the inserted plate.
- Serves as a guide for the inserted plate.
- Ensures that the inserted plate is centered on the bone.

For additional information see the separate Synthes publication on the Hohmann retractor holder (Art. No. 036.000.219).

Soft Tissue Retractor
The offset blade facilitates a preparation of the epipereosteal cavity for percutaneous plate insertion.

- Adjustable blade for free choice of insertion angle and blade length
- Available in two sizes: for small and large fragment plates

For additional information see the separate Synthes publication on the Soft tissue retractor (Art. No. 036.000.127).
## LCP Medial Proximal Tibial Plates 4.5/5.0

<table>
<thead>
<tr>
<th>Steel</th>
<th>Pure Titanium (TiCP)</th>
<th>Holes (shaft)</th>
<th>Length (mm)</th>
<th>Side</th>
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<td>239.997</td>
<td>439.997</td>
<td>16</td>
<td>322</td>
<td>left</td>
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</tbody>
</table>

All plates are available nonsterile and sterile packed. For sterile implants add suffix S to article number.
Screws

Cannulated Locking Screw ⌀ 5.0 mm
(0X.205.025 – 0X.205.145)
Creates a locked, fixed-angle screw-plate construct
- Threaded conical head
- Fully threaded shaft
- Self-drilling, self-tapping tip

Cannulated Conical Screw ⌀ 5.0 mm
(0X.205.240 – 0X.205.295)
Compresses the plate to the lateral femoral condyle and provides interfragmentary compression
- Smooth conical head
- Partially threaded shaft
- Self-drilling, self-tapping tip

Screw Nut ⌀ 5.0 mm (X22.578)
Offers additional fixation and compression options for complex fractures
- Self-cutting, serrated tip
- Inserted from the lateral aspect of the proximal tibia
- Internal threads mate with the 5.0 mm cannulated conical screws

See the LCP Condylar Plate 4.5/5.0 Technique Guide (Art. No. 036.000.727) for more information on use of the screw nut.

Locking Screw ⌀ 5.0 mm
Creates a locked, fixed-angle screw-plate construct
- Threaded conical head
- Fully threaded shaft
- Self-tapping tip

Cortex Screw ⌀ 4.5 mm (X14.814 – X14.940)
- May be used in the DCU portion of the combi-holes in the plate shaft
- Compresses the plate to the bone or creates axial compression
- Self-tapping tip

X = 2: Stainless steel
X = 4: Titanium and titanium alloy (TAN)
Cannulated Locking and Cannulated Conical Screws
Ø 5.0 mm
The screw design enhances fixation and facilitates the surgical procedure.

Screw head
The conical head simplifies alignment in the plate hole. This is of particular importance when using locking screws. The threaded screw head must align with the plate hole threads to provide a secure screw-plate construct. To ensure proper alignment and prevent cross-threading, the appropriate threaded wire guide or drill guide must always be used.

Large diameter screw core
The large diameter screw core improves bending and shear strength, and distributes the load over a larger area in the bone.

Thread profile
The shallow thread profile of the locking screws is necessary to provide a larger core. This is appropriate since locking screws do not rely on compression between the plate and the bone to maintain stability. When required, interfragmentary compression can be achieved with the partially threaded cannulated conical screws, especially when near the articular surface.
Drill and Wire Guides

324.174 Wire Guide 5.0, for Guide Wire Ø 2.5 mm
Fits the screw holes in the plate head

323.042 LCP Drill Sleeve 5.0, for Drill Bits Ø 4.3 mm
Fits the threaded part of the combi-holes in the plate shaft

323.460 Universal Drill Guide 4.5/3.2
Fits the nonthreaded part of the combi-holes in the plate shaft
### Sets

**Plate Set LCP Medial Proximal Tibial Plates 4.5/5.0 in Vario Case**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>01.120.430</td>
<td>Stainless steel</td>
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<tr>
<td>01.120.431</td>
<td>Titanium</td>
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<tr>
<td>689.508</td>
<td>Vario Case</td>
</tr>
<tr>
<td>68.120.430</td>
<td>Insert</td>
</tr>
<tr>
<td>689.507</td>
<td>Lid</td>
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**01.120.021 Periarticular LCP Plating System Instrument Set in Vario Case**

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Additionally required

**01.120.457 LCP Large Fragment Instrument Set**

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**LCP Screw Set Ø 4.5/5.0 mm**

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<tr>
<th>Material</th>
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<th>Stardrive recess</th>
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<td>01.200.013</td>
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<td>Titanium</td>
<td>01.200.012</td>
<td>01.200.014</td>
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<table>
<thead>
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<tbody>
<tr>
<td>300.610</td>
<td>Sterilization Tray</td>
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MRI Information

**Torque, Displacement and Image Artifacts according to ASTM F 2213-06, ASTM F 2052-06e1 and ASTM F2119-07**

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 F2182-11a**

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.