Universal Locking Trochanter Stabilization Plate (ULTSP).
For use with the DHS/DCS and LCP DHHS systems.
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The Universal Locking Trochanter Stabilization Plate (ULTSP) extends the DHS and LCP DHHS constructs to help stabilize the greater trochanter and to facilitate insertion of an anti-rotation screw into the femoral head.

The combination of the DHS or LCP DHHS and the universal locking TSP prevents lateral displacement of greater trochanter fragments during impaction of the fracture zone. This helps prevent medialization of the shaft relative to the head-neck fragment.

A 3.5 mm locking screws can be inserted into threaded holes to fix greater trochanteric fracture fragments and provide angular stability

B Arms can easily be cut or bent to fit the anatomy

C Head extension minimizes lateral displacement of greater trochanteric fracture fragment(s)

D Proximal slot accommodates a parallel anti-rotation screw

E Distal slot accommodates either the DHS lag screw or the LCP DHHS helix blade

F Screw holes for fixation of the ULTSP-DHS or -DHHS plate construct

G Large hole allows the addition of the ULTSP over the previously placed DHS plate or the LCP DHHS plate.
Limits medialization
- Provides buttress support to prevent the fracture from medializing and dropping into valgus

Prevents rotation
- 6.5 mm/7.3 mm cannulated screws can be placed through the plate, cranially and parallel to the DHS lag screw or the LCP DHHS helix blade
- By putting the anti-rotation screw through the plate, the plate prevents submersion of the screw head into osteopenic bone

Provides angular stability
- Provides supplemental fixation of the greater trochanter with the use of 3.5 mm locking screws
- Locking screws can be fixed unicortically, even in osteopenic bone
- Due to the improved stability of the screws in the plate, the greater trochanter can be secured as a functional entity without using cerclage wires

Permits dynamization
- Maintains the dynamization ability of the DHS or the LCP DHHS

Preserves vascularity
- As an internal fixator, the plate preserves bone vascularity

Allows customization
- Only one size is required
- Plate is easily bent or cut to match the patient’s anatomy
In 1958, the AO formulated four basic principles, which have become the guidelines for internal fixation.1 Those principles, as applied to the universal locking trochanter stabilization plate, are:

**Anatomic reduction**  
Plate arms can easily be altered to fit the anatomy and fracture pattern.

**Stable fixation**  
Locking screws create a fixed-angle construct, providing angular stability.

**Preservation of the blood supply**  
To maintain low profile, shaft fits tightly over DHS or LCP DHHS side plates.

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

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Indications

When used with the Synthes Dynamic Hip Screw (DHS) or the LCP Dynamic Helical Hip System (LCP DHHS) side plates with four or more holes, the Synthes Universal Locking Trochanter Stabilization Plate is intended to treat stable and unstable fractures of the proximal femur:

- Intertrochanteric
- Subtrochanteric
- Pertrochanteric
- Basilar neck fractures
1 Preparation

Required sets

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>01.102.001</td>
<td>Universal Locking Trochanter Stabilization Plate Set</td>
</tr>
<tr>
<td>105.190</td>
<td>6.5 mm/7.3 mm Cannulated Screw Set</td>
</tr>
<tr>
<td>105.388</td>
<td>LCP DHHS Basic Set</td>
</tr>
<tr>
<td>or 105.839</td>
<td>DHS One-Step Basic Set, with self-tapping screws</td>
</tr>
</tbody>
</table>

This technique assumes that the DHS lag screw and side plate or the LCP DHHS helix blade and side plate have already been implanted in the bone. For further instruction, see the DHS/DCS Dynamic Hip and Condylar Screw System and LCP Dynamic Helical Hip System (DHHS) Technique Guides.

Note: Do not plant screws in the first and third holes of the sideplate when planning to implant the universal locking trochanter stabilization plate. Do not remove K-wire from DHS lag screw or LCP DHHS helix blade if planning to insert an anti-rotation screw.
2

Customize plate to patient anatomy

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>329.513</td>
<td>Bending Template for Locking Trochanter Stabilization Plate</td>
</tr>
<tr>
<td>391.962</td>
<td>Bending/Cutting Pliers</td>
</tr>
</tbody>
</table>

**Optional instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>329.04*</td>
<td>Bending Irons, for 2.7 mm and 3.5 mm plates</td>
</tr>
<tr>
<td>329.05*</td>
<td>and</td>
</tr>
<tr>
<td>329.151*</td>
<td>Locking Calcaneal Plate Cutter</td>
</tr>
</tbody>
</table>

* Also available

Use the bending template to determine the desired shape of the ULTSP. Then use bending/cutting pliers to match the shape of the plate to the template.
3

Secure the plate

Instruments

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>310.31</td>
<td>3.2 mm Drill Bit, quick coupling, 145 mm</td>
</tr>
<tr>
<td>312.46</td>
<td>4.5 mm/3.2 mm Double Drill Sleeve</td>
</tr>
<tr>
<td>314.27</td>
<td>Large Hexagonal Screwdriver</td>
</tr>
<tr>
<td>319.10</td>
<td>Depth Gauge, for large screws</td>
</tr>
</tbody>
</table>

Position the ULTSP over the DHS or LCP DHHS plate. Ensure that the ULTSP is securely seated and that the distal slot allows clearance for the lag screw or helix blade.

Secure the ULTSP plate construct in position through the remaining screw holes. Drill using the 3.2 mm drill bit with the 4.5 mm/3.2 mm double drill sleeve. Measure the depth of the screw holes and insert the 4.5 mm cortex screws.
Implant Anti-Rotation Screw

4

Implant 6.5 mm/7.3 mm cannulated anti-rotation screw (optional)

Instruments

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>292.68</td>
<td>2.8 mm Threaded Guide Wire, 300 mm</td>
</tr>
<tr>
<td>310.63</td>
<td>5.0 mm Cannulated Drill Bit</td>
</tr>
<tr>
<td>312.01</td>
<td>2.8 mm Adjustable Parallel Wire Guide</td>
</tr>
<tr>
<td>314.05</td>
<td>Cannulated Hexagonal Screwdriver</td>
</tr>
<tr>
<td>314.23</td>
<td>Cannulated Hexagonal Screwdriver Shaft</td>
</tr>
<tr>
<td>319.70</td>
<td>Cannulated Screw Measuring Device</td>
</tr>
<tr>
<td>319.10</td>
<td>Depth Gauge, for large screws</td>
</tr>
</tbody>
</table>

Place the fixed sleeve of the 2.8 mm adjustable parallel wire guide over the guide wire that was previously inserted into the DHS lag screw or LCP DHHS helix blade. Position the movable sleeve superior and parallel to this guide wire. Tighten the knurled nut on the adjustable sleeve to lock it in place. Insert a 2.8 mm threaded guide wire.

Remove the wire guide and measure the screw length. Insert the desired screw.

Note: Alternate between tightening the anti-rotation screw and, if used, the DHS/DCS compression screw or the LCP DHHS compression screw to ensure an even compression of the fracture.

Minimize any interference between the plate and the gluteus medius. If the ULTSP crosses the insertion point of the gluteus medius, separate the muscle fibers with a scalpel to obtain optimal contact between the plate and the trochanter. This prevents a possible conflict between the muscle and the plate.

Remove guide wires.
Final Adjustment

5
Final adjustment

Instrument

| 312.648 | 2.8 mm Threaded Drill Guide |

Fine tuning of the plate arms may be achieved in situ by bending the arms with the 2.8 mm threaded drill guide. Apply small incremental force to achieve the required bending.

Warning: Avoid over-bending, as the drill guide may become dislodged from the plate hole and damage the threaded holes.
6

Insert locking screws

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>312.648 2.8 mm Threaded Drill Guide</td>
<td></td>
</tr>
<tr>
<td>314.115 StarDrive Screwdriver, T15</td>
<td></td>
</tr>
<tr>
<td>314.116 StarDrive Screwdriver Shaft, T15</td>
<td></td>
</tr>
<tr>
<td>324.214 2.8 mm Percutaneous Drill Bit, quick coupling, 200 mm</td>
<td></td>
</tr>
</tbody>
</table>

To fix the trochanter fragments with 3.5 mm locking screws, attach the 2.8 mm threaded drill guide in the appropriate plate hole. To ensure that the locking screw seats fully in the hole, the threaded drill guide must be used to ensure the proper drilling angle.

Use the 2.8 mm percutaneous drill bit through the threaded drill guide to drill through the cortex. As the screws are used unicortically, a screw length between 16 mm and 24 mm is sufficient. Locking screws should be short enough to avoid impaired dynamization of the lag screw. Insert the screws.

**Note:** Highly comminuted trochanteric fractures should be fixed as functional entities rather than attempting reduction of every single fragment. The cranial and oblique locking screws of the ULTSP counteract the tension forces of the gluteus medius and gather and impact the various fragments of the trochanteric fracture into one another.
Closure and Implant Removal

7
Close the wound

Close the vastus lateralis muscle by suturing the two proximal flaps around the “neck” of the ULTSP, and along its longitudinal incision. Perform a simple closure of the tensor fasciae latae muscle over a suction drain. Suture the subcutaneous fat and skin over the suction drain.

Implant removal

Instruments

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>314.05</td>
<td>Cannulated Hexagonal Screwdriver</td>
</tr>
<tr>
<td>314.115</td>
<td>StarDrive Screwdriver, T15</td>
</tr>
<tr>
<td>314.27</td>
<td>Large Hexagonal Screwdriver</td>
</tr>
</tbody>
</table>

Remove all fixation elements (screws, wire, cable, suture) attached to the ULTSP, then remove the anti-rotation screw (if used). Next remove the ULTSP, followed by the compression screw, and finally the DHS or LCP DHHS plate.

Please refer to the DHS/DCS Technique Guide, the One-Step DHS/DCS Technique Chart or the LCP DHHS Technique Guide for additional information.
Screws Used with the Universal Locking Trochanter Stabilization Plate (ULTSP)

3.5 mm Locking Screws
- Create a locked, fixed-angle screw/plate construct
- Threaded conical head
- Fully threaded shaft

4.5 mm Cortex Screws
- Self-tapping
- Secure plate to bone

6.5 mm Cannulated Screws
- Multiple thread length options:
  - 16 mm, 32 mm and fully threaded
- Cancellous thread
- Self-drilling, self-tapping
- Anti-rotation

7.3 mm Cannulated Screws
- Multiple thread length options:
  - 16 mm, 32 mm and fully threaded
- Cancellous thread
- Self-drilling, self-tapping
- Anti-rotation
<table>
<thead>
<tr>
<th>Instrument Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>312.648</td>
<td>2.8 mm Threaded Drill Guide, for 3.5 mm locking screws</td>
</tr>
<tr>
<td>314.115</td>
<td>StarDrive Screwdriver, T15, self-retaining</td>
</tr>
<tr>
<td>314.116</td>
<td>StarDrive Screwdriver Shaft, T15, self-retaining, quick coupling</td>
</tr>
<tr>
<td>324.214</td>
<td>2.8 mm Percutaneous Drill Bit, quick coupling, 200 mm, 100 mm calibration</td>
</tr>
<tr>
<td>329.513</td>
<td>Bending Template for Locking Trochanter Stabilization Plate</td>
</tr>
<tr>
<td>391.962</td>
<td>Bending/Cutting Pliers</td>
</tr>
</tbody>
</table>
Universal Locking Trochanter Stabilization Plate Set (01.102.001)

Graphic Case
60.102.001 Universal Locking Trochanter Stabilization Plate Graphic Case

Instruments
312.648 2.8 mm Threaded Drill Guide, for 3.5 mm Locking Screws, 2 ea.
314.115 StarDrive Screwdriver, T15, self-retaining
314.116 StarDrive Screwdriver Shaft, T15, self-retaining, quick coupling
324.214 2.8 mm Percutaneous Drill Bit, quick coupling, 200 mm, 100 mm calibration, for use with small LCP plates
329.513 Bending Template for Locking Trochanter Stabilization Plate
391.962 Bending/Cutting Pliers

Implants
02.102.001 Universal Locking Trochanter Stabilization Plate, 131 mm, 2 ea.
212.104 3.5 mm Locking Screw, self-tapping, with StarDrive recess, 16 mm, 6 ea.
212.106 3.5 mm Locking Screw, self-tapping, with StarDrive recess, 20 mm, 12 ea.
212.108 3.5 mm Locking Screw, self-tapping, with StarDrive recess, 24 mm, 12 ea.

Required Sets
105.190 6.5 mm/7.3 mm Cannulated Screw Set
105.388 LCP DHHS Basic Set
or
105.839 DHS One-Step Basic Set, with self-tapping screws

Also Available
329.04 Bending Iron, for 2.7 mm and 3.5 mm Locking Plates, 150 mm length, used with Bending Iron (329.05)
329.05 Bending Iron, for 2.7 mm and 3.5 mm Locking Plates, 150 mm length, used with Bending Iron (329.04)
329.151 Locking Calcaneal Plate Cutter

Sterilization Parameters for Set (01.102.001)
This Synthes set with all additionally available items, as marked in the case, can be sterilized by the following parameters. For more information, please refer to graphic case package insert.

<table>
<thead>
<tr>
<th>Method</th>
<th>Cycle</th>
<th>Temperature</th>
<th>Exposure Time</th>
</tr>
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<tbody>
<tr>
<td>Steam</td>
<td>Prevacuum (Wrapped)</td>
<td>132°–135°C (270°–275°F)</td>
<td>8 Minutes</td>
</tr>
<tr>
<td>Steam</td>
<td>Gravity Displacement (Wrapped)</td>
<td>132°–135°C (270°–275°F)</td>
<td>22 Minutes</td>
</tr>
</tbody>
</table>