Warning

This publication describes the recommended procedures for using Double Engine devices and instruments. It offers guidance that you should pay attention to. But as with any such technical guide, the guide alone does not provide sufficient background for direct use of the instrument set, each surgeon should also consider the particular needs of each patient and make appropriate adjustments when required. Instruction by experienced surgeon is still highly recommended.

All non-sterile devices must be cleaned and sterilized before use. Multi-component instruments must be disassembled for cleaning. Please follow the instructions provided in our Reprocessing, Care and Maintenance Guide (RCMG-2012).

Please refer to Package Insert for a complete list of potential adverse effects, contraindications, warnings and precautions. The surgeon must discuss all relevant risks, including the finite lifetime of the device, with the patient, when necessary.

Caution

The implants are designed for temporary fixation of fractured bone fragments until the bone heals. Therefore, if bone does not heal or bone consolidation is delayed or not sufficient, the system may break. Post-operative care under the guidance of the surgeon is also very important and it must be done to ensure the promotion of bone consolidation.
Surgical Technique

Indications
- Fractures of the trochanteric region, trochanteric simple, intertrochanteric, trochanteric reversed or transverse or with additional fracture of the medial cortex
- Fractures of the proximal end of the femur combined with ipsilateral shaft fractures
- Metastatic fracture of the proximal femur
- Osteotomies of the proximal femur
- For use in fixation of osteopenic bone and fixation of nonunions or malunions

Preoperative Planning
Preoperatively or intraoperatively determine the plate length and screw lengths to be used under the lateral x-ray of the uninjured femur. Make a lateral longitudinal incision to allow the placement of the plate.

Patient Position
Position the patient supine on a radiolucent operating table, or a fracture extension table for lower energy fracture settings.
Position the C-arm to allow visualization of the proximal femur and the fracture in both AP and lateral planes.

Plate Features

STEP 1
INSERT GUIDE WIRES

110110100 Drill Sleeve for Guide Wire, φ2.5
110110700 Guide Wire, φ2.5, length 320mm, with threaded tip
110110800 Guide Wire, φ2.5, length 250mm
110110300 Drill Sleeve for Drill Bits, large
110110400 Inner Sleeve, for Large Drill Sleeve

1) Thread the large drill sleeve and inner sleeve into the neck hole and insert a 320mm guide wire with threaded tip through the inner sleeve into the neck hole. (The proximal guide wire is ideally placed at a distance of 5mm below the bone surface level)

2) Thread the drill sleeve for guide wire into the most distal locking hole in the plate shaft and insert a 250mm guide wire through the drill sleeve into the locking hole.

3) Secure the large drill sleeve for drill bits and inner sleeve into the antverted hole and insert a 320mm guide wire with threaded tip over the inner sleeve into the antverted hole. (The proximal guide wire is ideally placed at a distance of 5mm below the bone surface level)

4) Repeat the procedures as mentioned above to insert a 320mm guide wire into the buttress hole at an appropriate depth of 76.5mm.
STEP 2
INSERT PROXIMAL SCREWS

2.1 Determine the Length of Screw
110030400 Depth Gauge for Guide Wire
Remove the inner sleeve remaining the guide wire in the neck hole. Use the depth gauge and determine the length of the required screw by subtracting 5mm of the read.

2.2 Drill
110110500 Drill Bit φ5.0, cannulated, length 250mm
110111100 Fixation Sleeve for Drill Bits
110111300 Tap for Cannulated Screws φ7.3, cannulated
Limit the 5.0mm cannulated drill bit by fixation sleeve as per the measuring length and then predrill through the guidance of the guide wire.
Note: If necessary, use 7.3mm tap for compact bone.

2.3 Insert the 7.3mm Locking Screw
110030900 Screwdriver, hexagonal, cannulated, φ4.0
Select the appropriate 7.3 mm locking screw. Use the cannulated hexagonal screwdriver to insert the 7.3 mm locking screw over the 2.5mm guide wire. Then remove the guide wire. Locking screws may be inserted using power tool; however, final seating and tightening must be done manually.

2.4 Insert Additional Locking Screws
Repeat the steps described above to insert 7.3mm locking screws into the buttress hole with screw length of 76.5mm and anteverted hole.

STEP 3
APPROXIMATE PLATE TO FEMORAL DIAPHYSIS

3.1 Drill
110070100 Drill Bit φ4.3, length 300mm
110070200 Drill Sleeve for Drill Bits, φ4.3
Screw the 4.3mm drill sleeve to the threaded hole. Use the 4.3mm drill bit for 6.5mm locking screws to drill to the desired depth.

3.2 Determine the Length of Locking Screws
110070300 Depth Gauge, for Locking Screws
Remove the drill sleeve and measure screw length using the depth gauge.

3.3 Insert Locking Screws
110070800 Screwdriver, hexagonal, φ3.5
110070700 Torque Indicating Screwdriver, 4.0Nm
Insert the appropriate length 5.0mm locking screw using screwdriver. After screw insertion, use the torque indicating screwdriver to check that all screws are fully inserted by hand. Remove drill bit. Repeat steps 3.1, 3.2 and 3.3 as necessary to insert additional locking screws.

STEP 4
INSERT THE LAG SCREW

3.1 Drill
110111700 Drill Bit, φ4.5, length 150mm
110030400 Depth Gauge for Guide Wire
110111600 Tap for Cancellous Bone Screws φ6.5
110030900 Screwdriver, hexagonal, cannulated, φ4.0
110061900 Reduction Forceps with Points
110062000 Bone Holding Forceps, self-centering
The reduction of lesser trochanter could be facilitated by using reduction forceps with points and bone hook. Use the same techniques described above to drill, measure, tap and insert 6.5mm lag screw.
### Proximal Femoral Locking Plate

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Code</th>
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<tbody>
<tr>
<td>110110100</td>
<td>Drill Sleeve for Guide Wire, φ2.5</td>
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<td>Tap for Cancellous Bone Screws φ6.5</td>
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Proximal Femoral Locking Plate

110111700 Drill Bit, φ4.5, length 150mm

110060800 T-Handle with Quick Coupling, cannulated

110650001 Instrument case

Instruments

110070100 Drill Bit, φ4.3, length 300mm

110070200 Drill Sleeve for Drill Bits, φ4.3

110070300 Depth Gauge, for Locking Screws

110070700 Torque Indicating Screwdriver, 4.0Nm

110070800 Screwdriver, hexagonal, φ3.5