LOQTEQ®

# Distal Lateral Femur Plate 4.5
## Surgical Technique

Locking Compression Technology by aap

**Disclaimer**

This surgical technique is exclusively intended for medical professionals, especially physicians, and therefore may not be regarded as a source of information for non-medical persons. The description of this surgical technique does not constitute medical advice or medical recommendations nor does it convey any diagnostic or therapeutic information on individual cases. Therefore, the attending physician is fully responsible for providing medical advice to the patient and obtaining the informed consent of the patient which this surgical technique does not supersede.
The description of this surgical technique has been compiled by medical experts and trained staff of aap mplantate AG with utmost diligence and to the best of their knowledge. However, aap Implantate AG excludes any liability for the completeness, accuracy, currentness, and quality of the information as well as for material or immaterial damages arising from the use of this information.

# Content

The Distal Lateral Femur Plate is part of the LOQTEQ® plating system. It combines anatomical fit, maximum strength and angular stability with compression capability throughout the length of the plate shaft. Targeting instruments specially designed for the femoral plate permit minimally invasive insertion technique, which aims to reduce soft tissue trauma.

## Material

The LOQTEQ® implants and instruments are manufactured using high-quality materials, which have been proven to be successful in medical technology for decades. The anatomical plates and bone screws are made of titanium alloy. All materials employed comply with national and international standards. They are characterized by good biocompatibility, a high degree of safety against allergic reactions and good mechanical properties. LOQTEQ® implants show an excellent, highly polished surface.

## Intended Use

Lateral Femur Plate 4.5 system are intended for the temporary fixation, correction or stabilization of the distal femur. The implants are intended for single use in human bone.

## Indications/Contraindications

### Indications for Use

Stabilization of intra-articular and extra-articular fractures; pseudarthrosis; periprosthetic fractures and corrections of distal femoral fractures healed in malposition and stabilization of distal diaphyseal fractures of the femoral shaft.

### Absolute Contraindications

- Infection or inflammation (localized or systemic)
- Allergies against the implant material
- Acute and chronic osteomyelitis at or close to the surgical field
- Unacceptably high anesthesia risk
- Severe soft tissue swelling compromising normal wound healing
- Insufficient soft tissue coverage
- Fractures in children and adolescents with epiphyseal plates that are not yet ossified

### Caution

**aap products are not approved for the spine.**

Detailed information on indications, contraindications and a complete list of adverse effects is included in the instructions for use.

## Processing (Sterilization & Cleaning)

**aap** markets unsterilized products which are appropriately labeled and must be appropriately processed before use (see Instructions for Use, chapter "Processing of products").

Never use damaged implants or implants from damaged packaging.

## MRI Safety Information

Non-clinical testing has demonstrated that the LOQTEQ® Distal Lateral Femur Plate 4.5 system is **MR Conditional**. Further information is included in the Instructions for Use that are enclosed with the products.



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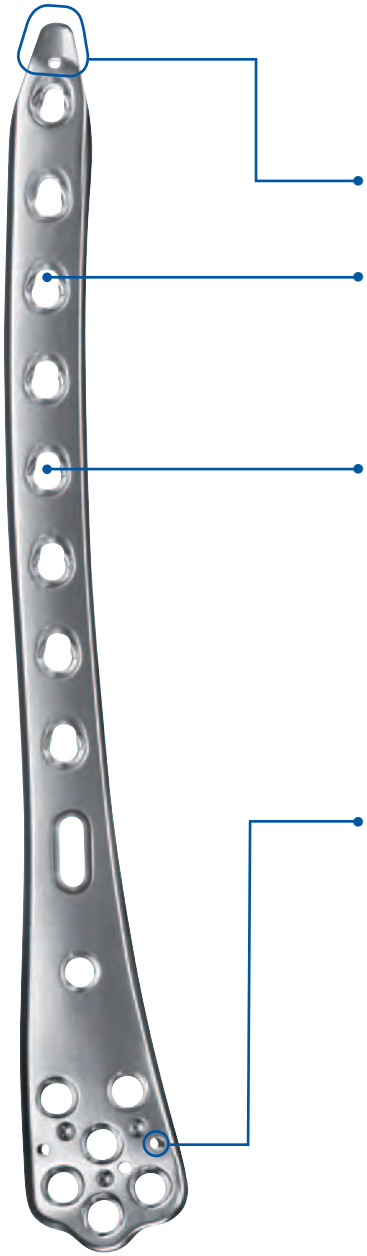
## Features & Benefits



Exceptional anatomical fit to lateral condyle and anatomical bow of femoral diaphysis reduce the need for contouring.

Flattened end of the plate shaft is designed for sub-muscular insertion.

Periprosthetic screws allow for secure monocortical fixation when an intramedullary implant is involved.

Plate holes accept ø4.5 mm locking (red) and non-locking (gold) screws.

Gliding locking holes in the plate shaft permit fracture compression and locking fixation in one step.

High shaft profile and lack of undercuts increase fatigue strength.

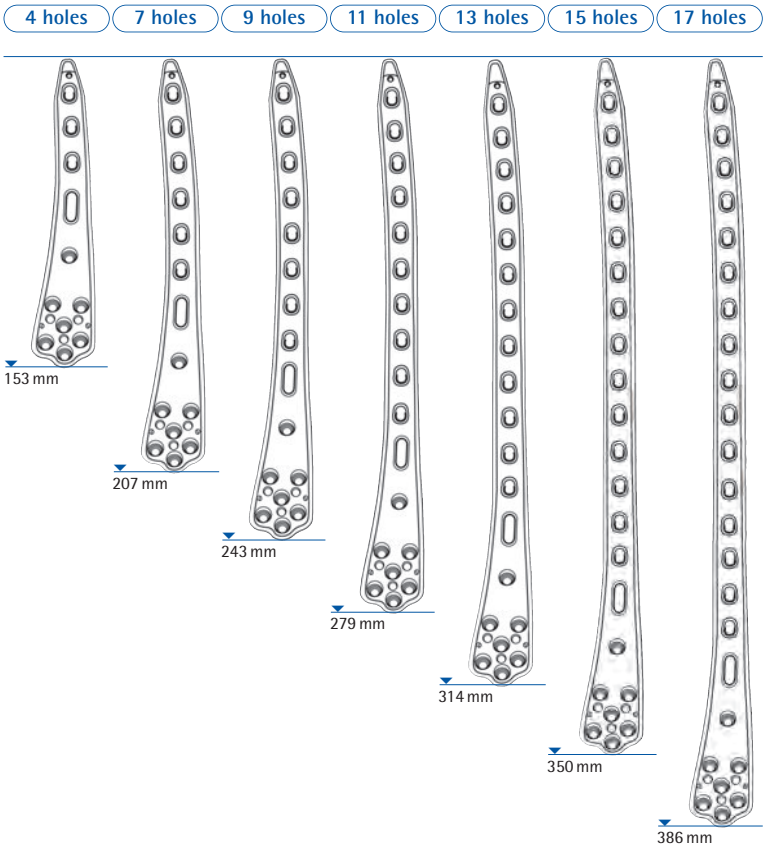
Radiolucent targeting device made of high quality carbon fiber facilitates minimally invasive application which reduces risk of infection and promotes earlier recovery of patients.

Various holes for K-wires and an oblong hole facilitate primary fixation of the plate.

Available for left and right sides.

## Preoperative planning

- Evaluate the fracture situation and select the appropriate plate size and position with an X-ray. Consider the use of independent lag screws, if necessary.

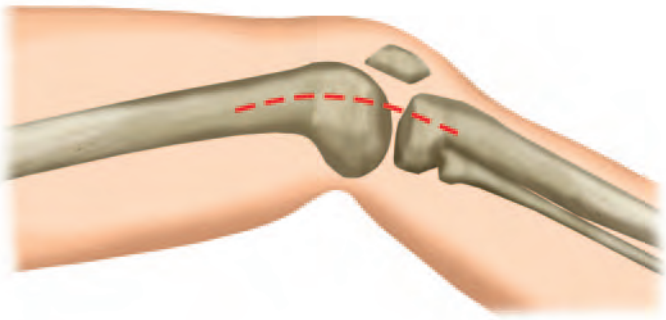



## Patient positioning

- Place the patient in the supine position with option to flex the knee. Visualization of the femur under fluoroscopy in both AP and lateral views is necessary.

## Approach

- Lateral, standard or modified
- Lateral parapatellar for complex intra-articular fractures





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## Preparation


| INSTRUMENTS | ART.-NO. |
|---|---|
| Handle for targeting frame LOQTEQ® DF 4.5, R (for right plate) | IU 8175-02 |
| Handle for targeting frame LOQTEQ® DF 4.5, L (for left plate) | IU 8175-12 |
| Stabilization bolt for targeting frame LOQTEQ® DF 4.5 | IU 8175-05 |
| Fixing nut for stabilization bolt | IU 8175-06 |
| Drill guide for distal Femur MIS LOQTEQ® 4.5 | IU 8167-50 |
| Screwdriver Duo long, T25, quick coupling | IU 7835-60 |
| Handle for quick coupling, large, cannulated | IU 7706-00 |

- Connect the fixing nut to the stabilization bolt. Screw it up against the knurled head of the stabilization bolt.
- Place the handle of the targeting frame on the metaphyseal part of the plate. Alignment pins on the handle should engage the corresponding grooves in the plate.
- Insert the stabilization bolt into hole A of the handle and screw it into the plate. Tighten the fixing nut against the handle.
- Additional stabilization can be achieved with a threaded drill guide inserted through hole G.

◆ **NOTE:**
**Anatomically pre-contoured plates minimize the need for intraoperative bending. Do not bend the plate, if you intend to use the targeting instruments for minimal invasive insertion as it may affect their ability for percutaneous screw insertion.**

◆ **CAUTION:**
**Anatomically preformed plates should not be bent where possible. If plates are adapted to anatomical bone structures, the implants should not be bent back and forth repeatedly and excessively as this may result in implant failure. Damage caused by sharp edges should be avoided when bending. Locking plates should in principle be bent in the area between the holes only. Bending plates along locking holes may impair or even abolish their function completely. If angular stability is compromised by bending, a non-locking screw should be used.**

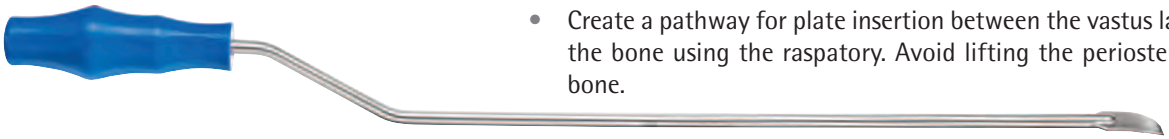
## Reduction and primary fixation

| INSTRUMENTS | ART.-NO. |
|---|---|
| K-wire with trocar point, ø2.0, L 250 | NK 0020-25 |

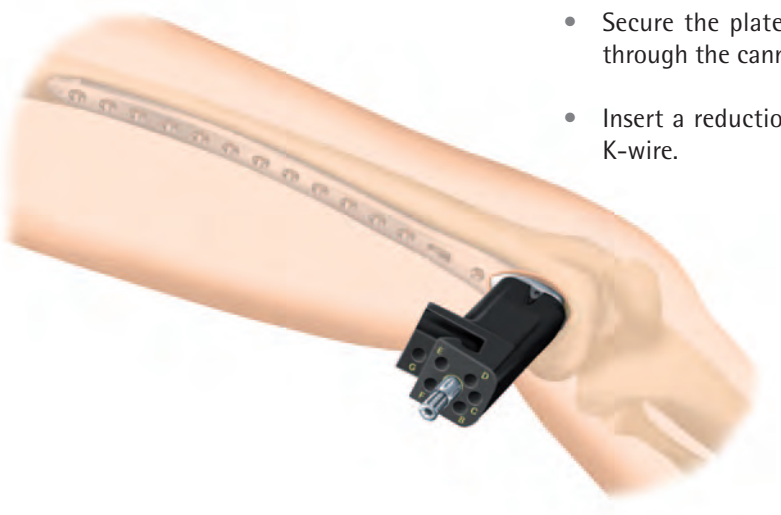
- Reduce and temporarily secure fracture fragments and the articular surface. Care must be taken when positioning K-wires or independent lag screws (see page 14), that they do not interfere with the later plate position.
- External fixation may help with axial, angular and rotational control intraoperatively.
- Confirm anatomic reduction using fluoroscopy.

## Insertion of plate

| INSTRUMENTS | ART.-NO. |
|---|---|
| Raspatory, long curved | IU 6020-00 |



- Create a pathway for plate insertion between the vastus lateralis and the bone using the raspatory. Avoid lifting the periosteum off the bone.
- Insert the plate, sliding the plate shaft along the bone until the metaphyseal part of the plate rests properly at the lateral condyle.
- Secure the plate to the condyle with a ø2.0 mm K-wire inserted through the cannula of the fixation bolt.
- Insert a reduction sleeve into the fixation bolt before seating the K-wire.





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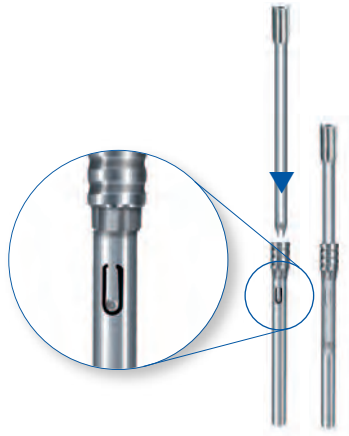
| INSTRUMENTS | ART.-NO. |
|---|---|
| Targeting frame LOQTEQ® DF 4.5, R (for right plate) | IU 8175-01 |
| Targeting frame LOQTEQ® DF 4.5, L (for left plate) | IU 8175-11 |
| Handle for targeting frame LOQTEQ® DF 4.5, R (for right plate) | IU 8175-02 |
| Handle for targeting frame LOQTEQ® DF 4.5, L (for left plate) | IU 8175-12 |

- Attach the targeting frame to the handle by pushing the L-shaped extensions into the lateral recesses of the handle. Start from a perpendicular position to the handle and press the arm down. Ensure no gap remains between targeting frame and handle.

- Align the plate on the shaft of the femur by palpation or fluoroscopy.

- Screw the trocar into a tissue protection sleeve. Insert tissue protection sleeve and trocar into the hole of the targeting frame which corresponds with the most proximal hole of the plate shaft and mark the skin for a stab incision. Make an incision.



locked
with drill guide

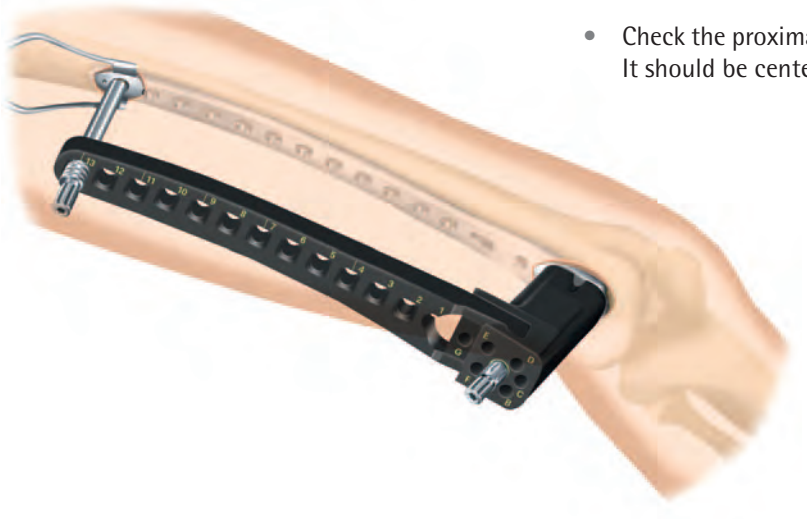
| INSTRUMENTS | ART.-NO. |
|---|---|
| Tissue protection sleeve LOQTEQ® DF 4.5, long | IU 8175-20 |
| Trocar, LOQTEQ® DF 4.5 | IU 8175-40 |
| Drill guide for distal Femur MIS LOQTEQ® 4.5 | IU 8167-50 |

- Guide the protection sleeve with trocar through the incision down to the plate. Ensure the tissue protection sleeve is locked into the targeting frame.

- Replace the trocar by a threaded drill guide and screw it into the plate.

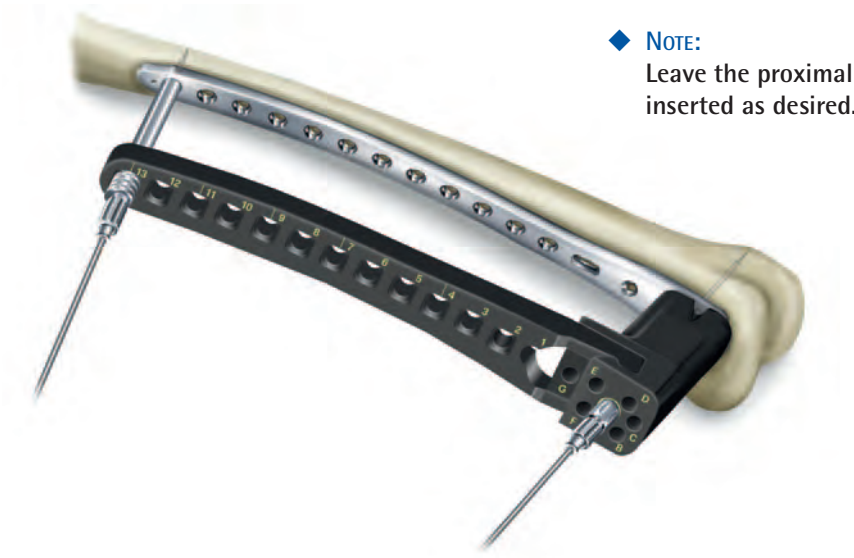
◆ NOTE:
**When a drill guide is inserted, the tissue protection sleeve locks into the targeting frame. Always remove the drill sleeve for insertion or removal of the tissue protection sleeve.**

- Check the proximal position of the plate by palpation or fluoroscopy. It should be centered on the femur shaft in a lateral view.



| INSTRUMENTS | ART.-NO. |
|---|---|
| Reduction sleeve for K-wire ø2.0, long | IU 8167-17 |
| K-wire with trocar point, ø2.0, L 310 | NK 0020-31 |

- Secure the plate shaft to the bone with a ø2.0 mm K-wire through the proximal drill guide with reduction sleeve.
- Check the position of plate and K-wires using fluoroscopy. Complete reduction and check length and rotation of the injured limb.
- If desired, insert a cortical screw in the oblong hole and push the plate to the bone (see page 14 for instructions).



◆ NOTE:
**Leave the proximal and distal K-wires in place until all screws are inserted as desired.**



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## Insertion of locking screws (red)

| INSTRUMENTS | ART.-NO. |
|---|---|
| Drill guide for distal Femur MIS LOQTEQ® 4.5 | IU 8167-50 |
| Twist drill ø3.8, L 310, quick coupling | IU 7438-33 |
| Depth gauge for targeting device LOQTEQ® DF 4.5 | IU 7940-00 |
| Stop ring for depth measurement, LF | IU 8184-03 |

◆ **NOTE:**
**All locking plate holes in the distal femur plate are designed for red locking screws or periprosthetic screws only!**
**Do not use blue locking screws! The smaller screw heads will not engage into the threads of the plate, thus preventing a locked plate-screw connection!**

- Start screw fixation distally when the plate position is confirmed. Choose the screw positions in accordance with biomechanical principles and preoperative planning.

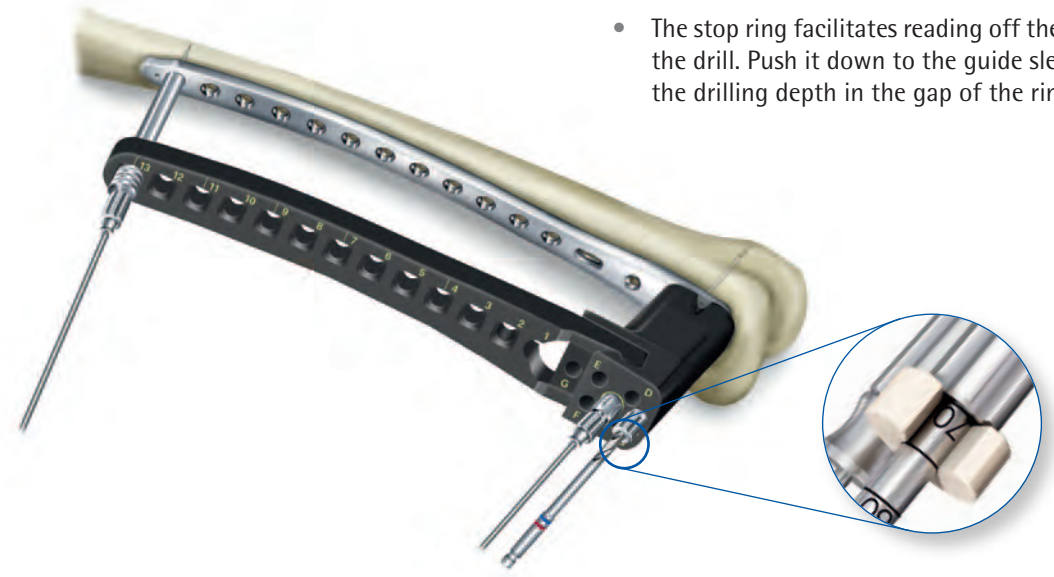
- Insert a threaded drill guide through a desired hole in the handle and start drilling with a ø3.8 mm drill (blue/red) until the drill tip touches the medial cortex. Use fluoroscopic views to ensure proper position of the drill and the drilling depth.

◆ **CAUTION:**
**The screwdriver duo is not intended for screwing the drill guide into the plate.**

- The screw length can be read off the calibration of the drill or determined with the depth gauge against the drill guide. Remove the drill guide.

◆ **NOTE:**
**The screwdriver duo facilitates manual removal of the drill guide.**

- The stop ring facilitates reading off the calibration when attached to the drill. Push it down to the guide sleeve and remove it for reading the drilling depth in the gap of the ring.




| INSTRUMENTS | ART.-NO. |
|---|---|
| Screwdriver Duo long, T25, quick coupling | IU 7835-60 |
| Handle with quick coupling, with torque limiter, 3.5 Nm | IU 7707-35 |
| Handle for quick coupling, large, cannulated | IU 7706-00 |
| Marking plug for handle of targeting frame LOQTEQ® DF 4.5 | IU 8175-08 |

- Select a locking screw (red) of the proper length and insert it through the handle using the screwdriver T25.
- Insert the screw manually or under power with a low speed. Stop insertion when the yellow marking on the screwdriver approaches the handle.

◆ **NOTE:**
**Ensure proper alignment of the screwdriver and that the screwdriver tip is fully seated in the screw head.**

- Finish the screw manually using the screwdriver T25 with the torque limiting handle. Optimal locking should be achieved with an audible and tactile click of the torque limiter. Mark the position of the screw with a yellow plug in the handle.
- Insert metaphyseal screws as desired following the same technique. Check the result using fluoroscopy. Confirm that all screw heads are flush with the plate surface and adjust screw positioning or length as necessary.

◆ **CAUTION:**
**Do not replace the K-wire in hole A with a screw until all necessary screws are inserted in the plate shaft.**



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| INSTRUMENTS | ART.-NO. |
|---|---|
| Tissue protection sleeve LOQTEQ® DF 4.5, long | IU 8175-20 |
| Trocar, LOQTEQ® DF 4.5 | IU 8175-40 |
| Drill guide for gliding hole LOQTEQ® 4.5, l-ø 4.2, red, long | IU 8167-40 |
| Twist drill ø3.8, L 310, coil 50, quick coupling | IU 7438-33 |
| Depth gauge for targeting device LOQTEQ® DF 4.5 | IU 7940-00 |
| Stop ring for depth measurement, LF | IU 8184-03 |

- Start placing diaphyseal screws as planned. Make a stab incision over the chosen plate hole. Consider using the trocar for marking the skin as described (see page 7) before making the incision. Guide the protection sleeve with trocar through the incision down to the plate. Ensure the tissue protection sleeve is locked into the targeting frame.

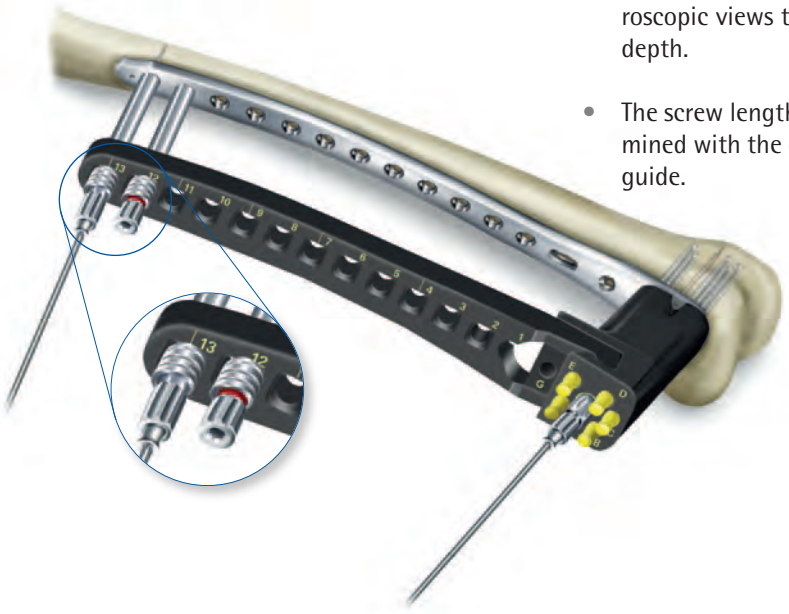
◆ NOTE:
**Confirm that the targeting frame is firmly attached to the plate shaft proximally.**

- Replace the trocar by a long drill guide for gliding holes (red color marking) and screw it into the tissue protection sleeve. The drill guide will center in the plate hole.

◆ NOTE:
**When a drill guide is inserted, the tissue protection sleeve locks into the targeting frame. Always remove the drill sleeve for insertion or removal of the tissue protection sleeve.**

- Drill to the desired depth using a drill ø3.8 mm (blue/red). Use fluoroscopic views to ensure proper position of the drill and the drilling depth.

- The screw length can be read off the calibration of the drill or determined with the depth gauge against the drill guide. Remove the drill guide.

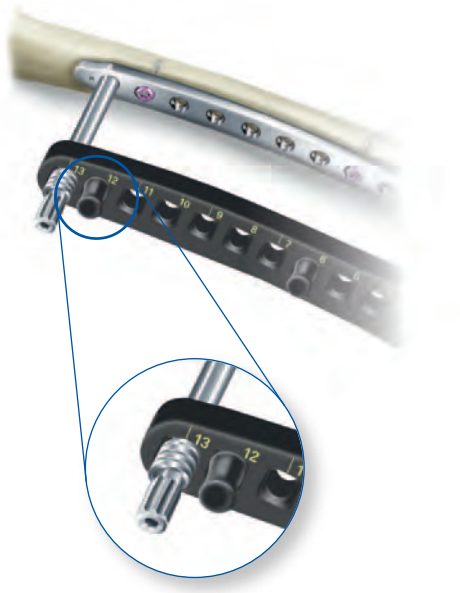



| INSTRUMENTS | ART.-NO. |
|---|---|
| Screwdriver Duo long, T25, quick coupling | IU 7835-60 |
| Handle with quick coupling, with torque limiter, 3.5 Nm | IU 7707-35 |
| Large handle, cannulated, quick coupling | IU 7706-00 |
| Marking plug for targeting frame LOQTEQ® DF 4.5 | IU 8175-07 |

- Select a locking screw (red) of the proper length, and insert it through the tissue protection sleeve using the screwdriver T25.
- Insert the screw manually or under power with a low speed. Stop insertion when the black marking on the screwdriver approaches the rim of the sleeve.

◆ **NOTE:**
**Ensure proper alignment of the screwdriver and that the screwdriver tip is fully seated in the screw head.**

- Finish the screw manually using the screwdriver T25 with the torque limiting handle. Optimal locking should be achieved with an audible and tactile click of the torque limiter. Mark the position of the screw with a black plug in the targeting frame.



◆ **CAUTION:**
**As soon as the head of the screw reaches the plate hole, it is compulsory to switch to the torque limiter. In cases of uncommonly hard bone in the diaphysis, it may be necessary to finish the screw without the torque limiter to ensure the screw head is flush with the plate.**

- Insert metaphyseal screws as desired following the same technique. Check the result using fluoroscopy. Confirm that all screw heads are flush with the plate surface and adjust screw positioning or length as necessary.
- If preoperative planning includes the most proximal plate hole and hole A, insert the diaphyseal screw first. Remove the K-wire and reduction sleeve and insert a screw following the technique for diaphyseal screw insertion. Remove the targeting frame.
- Follow the instructions for diaphyseal screw insertion when placing a screw in plate hole A. Remove K-wire and reduction sleeve first.

◆ **NOTE:**
**The handle of the targeting frame will lose connection to the plate when the fixation bolt is removed after drilling. If the handle is needed for screw guidance, reattach it with the stabilization bolt in any free distal plate hole or hold the handle tight to the plate.**

- Perform final check using fluoroscopy in both AP and lateral planes.



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Follow the steps below in cases, when the targeting instruments are not applicable or short plates are used. Start with the preoperative planning (see page 4).

## Preparation

| INSTRUMENTS | ART.-NO. |
|---|---|
| Aiming device LOQTEQ® Distal Femur Plate, R | IU 8189-01 |
| Aiming device LOQTEQ® Distal Femur Plate, L | IU 8189-02 |
| Fixing screw aiming device LOQTEQ® DF Plate | IU 8189-03 |

- Choose the appropriate access and extend it to the diaphysis as necessary. The plate can be used for guidance.
- Attach the targeting device (guide block) to the plate with the fixing screw inserted through the central hole.

## Insertion of plate

| INSTRUMENTS | ART.-NO. |
|---|---|
| K-wire with trocar point, ø2.0, L 250 | NK 0020-25 |

- Perform anatomic reduction following the instructions on page 6. Consider the use of independent lag screws prior to plate insertion.
- Complete reduction and check length and rotation of the injured limb.
- Properly position the plate on the lateral condyle and the diaphysis. Secure the plate to the bone with K-wires or with a cortical screw in the oblong hole. Using a cortical screw in the oblong hole for primary fixation allows for corrections in plate positioning.
- Confirm the plate position using fluoroscopy.

## Insertion of cortical screws (gold)

| INSTRUMENTS | ⬢ | ✱ |
|---|---|---|
| Twist drill ø3.2, L 195, coil 50, quick coupling | IU 7432-30 | IU 7432-30 |
| Double drill guide ø3.2/4.5, with spring aided centering | IU 8117-50 | IU 8117-50 |
| Depth gauge for screws ø4.5 - 6.5, up to L 100 | IS 7905-20 | IS 7905-20 |
| Screwdriver, quick coupling | IU 7835-00 | IU 7835-56 |
| Large handle, cannulated, quick coupling | IU 7706-00 | IU 7706-00 |
| Handle with quick coupling, with torque limiter, 3.5 Nm | IU 7707-35 | IU 7707-35 |

- To insert a cortical screw in the oblong hole, place the double drill guide in the center of the oblong hole and press it down. Chose a drill ø3.2 mm and drill through both cortices. Determine the length of the screw using the depth gauge and insert a screw of appropriate length using the screwdriver T25. This screw can push the plate to the bone, if necessary.
- Check the plate position using fluoroscopy and adjust if required.
- Use this technique for inserting non-locking screws without compression into any other plate hole.
- When using cortical screws as lag screws, use the ø4.5 end of the double drill guide and start drilling with a drill ø4.5 mm through the near cortex or perforating the fracture line. Then center the ø3.2 side of the drill guide in the gliding hole and drill with a drill ø3.2 mm to the desired depth. Determine the screw length using the depth gauge and insert a non-locking cortical screw (gold) of the appropriate length.




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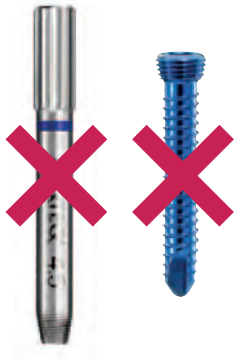
## Insertion of locking screws (red/gold)

| INSTRUMENTS | ART.-NO. |
|---|---|
| Drill guide for gliding hole LOQTEQ® 4.5, l-ø 3.9, red | IU 8167-10 |
| Twist drill ø3.8, L 180, coil 50, quick coupling | IU 7438-18 |
| Depth gauge for screws ø4.5 - 6.5, up to L 100 | IS 7905-20 |
| LOQTEQ® screw guide sleeve 4.5, red | IU 8220-45 |
| Screwdriver Duo, T25, quick coupling | IU 7835-56 |
| Large handle, cannulated, quick coupling | IU 7706-00 |
| Handle with quick coupling, with torque limiter 3.5Nm | IU 7707-35 |

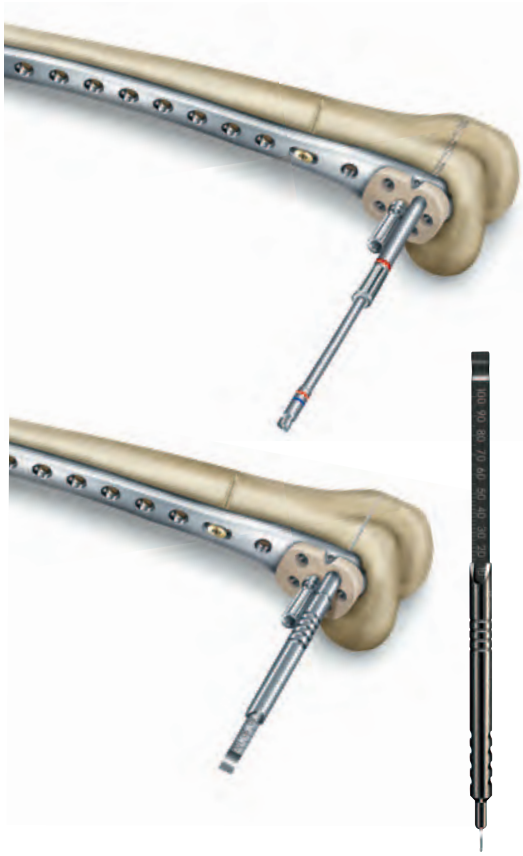
◆ **NOTE:**
**If a combination of non-locking and locking screws is used, non-locking screws must be inserted first.**



◆ **NOTE:**
**All locking plate holes in the distal femur plate are designed for red locking screws or periprosthetic screws only!**
**Do not use blue locking screws! The smaller screw heads will not engage into the threads of the plate, thus preventing a locked plate-screw connection!**

- Start screw fixation in the metaphyseal part. Insert a drill guide (red, short) through any chosen hole in the targeting device and screw it into the plate.

◆ **CAUTION:**
**The screwdriver duo is not intended for screwing the drill guide into the plate.**



- Close to a joint, it is recommended to check the position of the later inserted screws with a K-wire. Use a drill guide with reduction sleeve for insertion of a K-wire ø2.0 in the most distal plate hole under fluoroscopy control. Adjust plate position, if required, and confirm later screw alignment. Then remove K-wire and reduction sleeve.
- Drill with a ø3.8 mm drill (blue/red) until the drill tip touches the medial cortex. Use fluoroscopic views to ensure proper position of the drill and the drilling depth.
- The screw length can be read off the calibration of the drill or determined using the depth gauge, after the drill guide has been removed.

◆ **NOTE:**
**The screwdriver duo facilitates manual removal of the drill guide.**

- A screw guide sleeve can now be attached to the respective hole in the targeting device to ensure proper alignment of the screw in the core drilling.

◆ **NOTE:**
**The screw guide sleeve is designed for use with the targeting device only!**

| INSTRUMENTS | ART.-NO. |
|---|---|
| LOQTEQ® screw guide sleeve 4.5, red | IU 8220-45 |
| Screwdriver Duo, T25, quick coupling | IU 7835-56 |
| Large handle, cannulated, quick coupling | IU 7706-00 |
| Handle with quick coupling, with torque limiter 3.5Nm | IU 7707-35 |

- Select a locking screw (red) or a periprosthetic screw (gold) of the proper length. Loosely insert the screw using the screwdriver T25 manually or under power with a low speed. Stop insertion when the screw head is flush with the targeting device. The cut-out in the guide sleeve allows for watching the screw head during insertion.

◆ **NOTE:**
**Ensure proper alignment of the screwdriver and that the screwdriver tip is fully seated in the screw head.**

- Finish the screw manually using the screwdriver bit T25 with the torque limiting handle 3.5Nm. With an audible and tactile click of the torque limiter, optimal locking is achieved.

◆ **CAUTION:**
**As soon as the head of the screw reaches the plate hole, it is compulsory to switch to the torque limiter.**

- Insert metaphyseal screws as desired following the same technique. Check the result using fluoroscopy. Confirm all screw heads are flush the with plate surface and adjust screw positioning or length as necessary.

- Once all metaphyseal screws have been placed, the plate shaft area can be secured.

- Insert the drill guide (red, short) and drill to the desired depth using a drill ø3.8 (blue/red).



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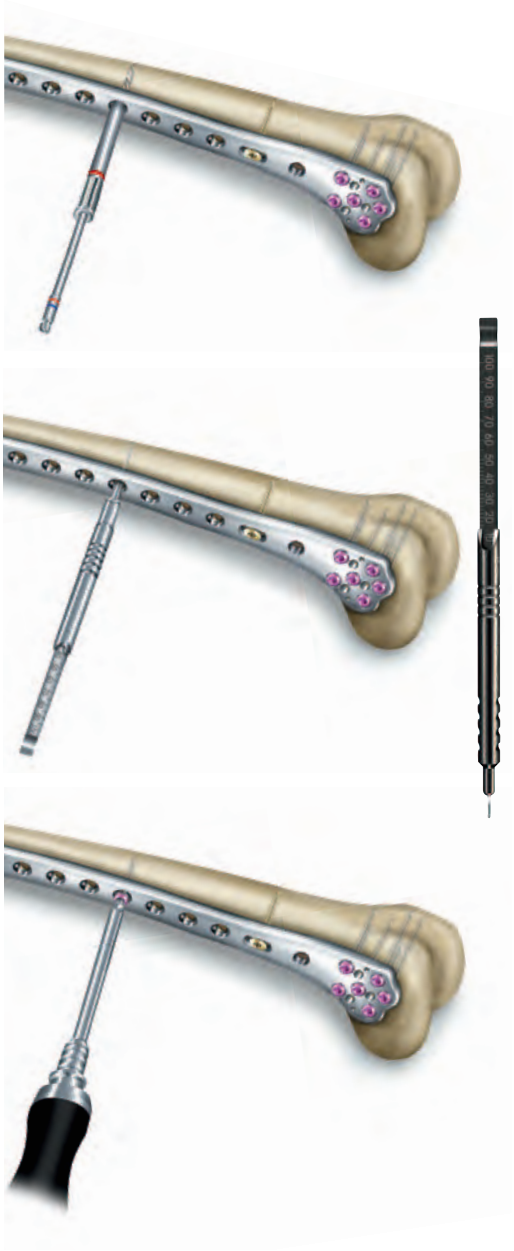


- The screw length can be read off the calibration of the drill or determined using the depth gauge, after the drill guide has been removed.
- Select a locking screw (red) of the proper length. Loosely insert the screw using the screwdriver T25 manually or under power with a low speed. Stop insertion when the screw head approaches the plate surface.

◆ **Caution:**
**As soon as the head of the screw reaches the plate hole, it is compulsory to switch to the torque limiter. In cases of uncommonly hard bone in the diaphysis, it may be necessary to finish the screw without the torque limiter to ensure the screw head is flush with the plate.**

- Finish the screw manually using the screwdriver bit T25 with the torque limiting handle 3.5Nm. With an audible and tactile click of the torque limiter, optimal locking is achieved.
- Once all diaphyseal screws have been placed using the same techniques, perform final check using fluoroscopy. Confirm that all screw heads are flush with the plate surface and adjust screw positioning or length as necessary.

## Insertion of locking screws (red) with compression

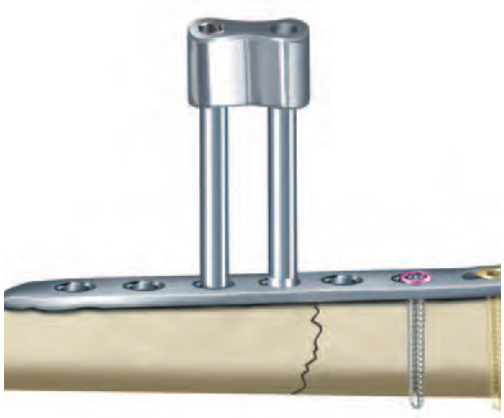
| INSTRUMENTS | ART.-NO. |
|---|---|
| Basic Insert for load drill guide LOQTEQ® 4.5 | IU 8167-05 |
| Load drill guide LOQTEQ® 4.5, compression 1 mm | IU 8167-01 |
| Load drill guide LOQTEQ® 4.5, compression 2 mm | IU 8167-02 |
| Twist drill ø3.8, L 180, coil 50, quick coupling | IU 7438-18 |
| Twist drill ø3.8, L 250, coil 50, quick coupling | IU 7438-25 |
| Screwdriver Duo, T25, quick coupling | IU 7835-56 |
| Handle with quick coupling, with torque limiter 3.5Nm | IU 7707-35 |
| **OPTIONAL** | |
| Load drill guide LOQTEQ® 4.5, adjustable up to 2 mm | IU 8167-03 |


- The plate shaft features LOQTEQ® compression holes which allow for fracture compression with subsequent locking fixation in one step. Load drill guides enable compressing fracture gaps of up to 2 mm.
- Screw the basic insert for load drill guides into a shaft hole near the fracture line or, if necessary, above the fracture line. Choose a load drill guide in accordance with the compression distance (1mm or 2mm), slide it on the basic insert and place the drill guide in the next plate hole, away from the fracture gap. Avoid pressure on the drill guide.

◆ **CAUTION:**
**The screwdriver duo is not intended for screwing the basic insert into the plate.**

- If available, use the adjustable load drill guide. The fracture gap serves as orientation in setting the compression distance (max. 2mm) by turning the wheel of the load drill guide until an appropriate gap opens in the upper part of the instrument.

◆ **NOTE:**
**Care should be taken when selecting the proper compression distance (1 or 2mm). Avoid overcompression to ensure full locking of the screw, especially in hard bone.**





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- Drill to the desired depth using a drill ø3.8 (blue/red) and remove the basic insert. The screw length can be read off the calibration of the drill or determined using the depth gauge, after the drill guide has been removed.

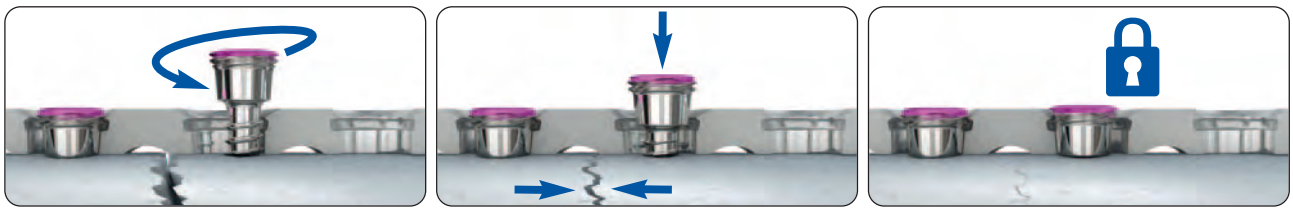
◆ **NOTE:**
**The screwdriver duo facilitates manual removal of the basic insert.**

- Select a locking screw (red) of the proper length. Loosely insert the screw using the screwdriver T25 manually or under power with a low speed. Stop insertion when the screw head approaches the plate surface. Finish the screw manually using the screwdriver bit T25 with the torque limiting handle 3.5Nm. With an audible and tactile click of the torque limiter, optimal locking is achieved.

- Ensure correct fit of the screws using fluoroscopy.

◆ **CAUTION:**
**As soon as the head of the screw reaches the plate hole, it is compulsory to switch to the torque limiter. In cases of uncommonly hard bone in the diaphysis, it may be necessary to finish the screw without the torque limiter to ensure the screw head is flush with the plate.**

- Alternatively, insert a non-locking cortical screw (gold) as a compression screw. Use the double drill guide in an off-center position (do not apply pressure on the drill guide), and drill using a ø3.2 mm drill (see page 14).



| INSTRUMENTS | ART.-NO. |
|---|---|
| Explanation screwdriver, T25, round handle | IU 7811-25 |

◆ **NOTE:**
**The screwdrivers T25 in the set (IU 7835-56) are self-retaining and should not be used for screw explantation.**

- Use the corresponding explantation screwdriver for safe removal of a screw. Explantation screwdrivers are not self-retaining, penetrate further into the screw head and thus permit a higher torque when removing screws. They are not included in the set as standard and must be ordered separately.

- Place an incision on the old scar. Manually undo all screws and sequentially remove them. After manually unlocking all screws, removal may be performed using a power tool.



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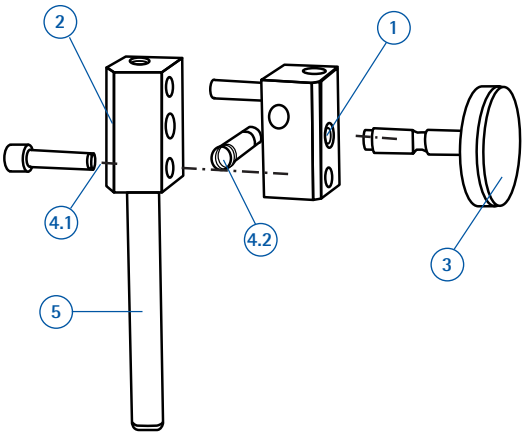
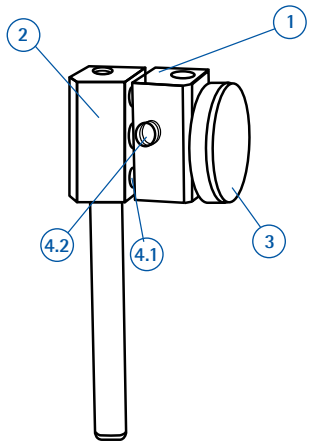
## Disassembly




### Adjustable load drill guide (IU 8167-03)

- Remove screws (item 4.1 and 4.2) using a hexagonal screwdriver 2.5
- Unscrew the set screw (item 3)
- Pull the compression block apart (items 1 and 2)

## Assembly




- Fit together the compression block (items 1 and 2)
- Insert the set screw (item 3) into the compression block, middle hole
- Insert the retaining screws (items 4.1 and 4.2) using a hexagonal screwdriver 2.5

## LOQTEQ® Distal Lateral Femur Plate 4.5

| HOLES | LENGTH | LEFT | RIGHT |
|---|---|---|---|
| 4 | 153 | PF 4511-04-2 | PF 4510-04-2 |
| 7 | 207 | PF 4511-07-2 | PF 4510-07-2 |
| 9 | 243 | PF 4511-09-2 | PF 4510-09-2 |
| 11 | 279 | PF 4511-11-2 | PF 4510-11-2 |
| 13 | 314 | PF 4511-13-2 | PF 4510-13-2 |
| 15 | 350 | PF 4511-15-2 | PF 4510-15-2 |
| 17 | 386 | PF 4511-17-2 | PF 4510-17-2 |



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### LOQTEQ® Cortical Srcew 4.5, T25, self-tapping

| | |
|---|---|
| L 14 | SK 4525-14-2* |
| L 16 | SK 4525-16-2* |
| L 18 | SK 4525-18-2* |
| L 20 | SK 4525-20-2 |
| L 22 | SK 4525-22-2 |
| L 24 | SK 4525-24-2 |
| L 26 | SK 4525-26-2 |
| L 28 | SK 4525-28-2 |
| L 30 | SK 4525-30-2 |
| L 32 | SK 4525-32-2 |
| L 34 | SK 4525-34-2 |
| L 36 | SK 4525-36-2 |
| L 38 | SK 4525-38-2 |
| L 40 | SK 4525-40-2 |
| L 42 | SK 4525-42-2 |
| L 45 | SK 4525-45-2 |
| L 50 | SK 4525-50-2 |
| L 55 | SK 4525-55-2 |
| L 60 | SK 4525-60-2 |
| L 65 | SK 4525-65-2 |
| L 70 | SK 4525-70-2 |
| L 75 | SK 4525-75-2 |
| L 80 | SK 4525-80-2 |
| L 85 | SK 4525-85-2 |
| L 90 | SK 4525-90-2* |

### Cortical Srcew 4.5, T25, self-tapping

| | |
|---|---|
| L 20 | SK 4514-20-2 |
| L 22 | SK 4514-22-2 |
| L 24 | SK 4514-24-2 |
| L 26 | SK 4514-26-2 |
| L 28 | SK 4514-28-2 |
| L 30 | SK 4514-30-2 |
| L 32 | SK 4514-32-2 |
| L 34 | SK 4514-34-2 |
| L 36 | SK 4514-36-2 |
| L 38 | SK 4514-38-2 |
| L 40 | SK 4514-40-2 |
| L 42 | SK 4514-42-2 |
| L 45 | SK 4514-45-2 |
| L 50 | SK 4514-50-2 |
| L 55 | SK 4514-55-2 |
| L 60 | SK 4514-60-2 |
| L 65 | SK 4514-65-2 |
| L 70 | SK 4514-70-2 |
| L 75 | SK 4514-75-2 |
| L 80 | SK 4514-80-2 |
| L 85 | SK 4514-85-2 |
| L 90 | SK 4514-90-2* |

### LOQTEQ® Periprosthetic Screw 4.5, T25, self-tapping

| | |
|---|---|
| L 12 | SK 4527-12-2 |
| L 14 | SK 4527-14-2 |
| L 16 | SK 4527-16-2 |
| L 18 | SK 4527-18-2* |

### Cortical Screw 4.5, self-tapping**

| | |
|---|---|
| L 14 | SK 4510-14-2 |
| L 16 | SK 4510-16-2 |
| L 18 | SK 4510-18-2 |
| L 20 | SK 4510-20-2 |
| L 22 | SK 4510-22-2 |
| L 24 | SK 4510-24-2 |
| L 26 | SK 4510-26-2 |
| L 28 | SK 4510-28-2 |
| L 30 | SK 4510-30-2 |
| L 32 | SK 4510-32-2 |
| L 34 | SK 4510-34-2 |
| L 36 | SK 4510-36-2 |
| L 38 | SK 4510-38-2 |
| L 40 | SK 4510-40-2 |
| L 42 | SK 4510-42-2 |
| L 45 | SK 4510-45-2 |
| L 50 | SK 4510-50-2 |
| L 55 | SK 4510-55-2 |
| L 60 | SK 4510-60-2 |
| L 65 | SK 4510-65-2 |
| L 70 | SK 4510-70-2 |

### Cortical Screw 4.5, small head, self-tapping**

| | |
|---|---|
| L 14 | SK 4512-14-2 |
| L 16 | SK 4512-16-2 |
| L 18 | SK 4512-18-2 |
| L 20 | SK 4512-20-2 |
| L 22 | SK 4512-22-2 |
| L 24 | SK 4512-24-2 |
| L 26 | SK 4512-26-2 |
| L 28 | SK 4512-28-2 |
| L 30 | SK 4512-30-2 |
| L 32 | SK 4512-32-2 |
| L 34 | SK 4512-34-2 |
| L 36 | SK 4512-36-2 |
| L 38 | SK 4512-38-2 |
| L 40 | SK 4512-40-2 |
| L 42 | SK 4512-42-2 |
| L 45 | SK 4512-45-2 |
| L 50 | SK 4512-50-2 |
| L 55 | SK 4512-55-2 |
| L 60 | SK 4512-60-2 |
| L 65 | SK 4512-65-2 |
| L 70 | SK 4512-70-2 |

* Not included in the set, must be ordered separately.

**Caution:
Current tray contents do no longer include these screws. Use the part numbers on the screw racks for your order or ask your local sales agent.


| | |
|---|---|
| Depth gauge for screws ø4.5 - 6.5, up to L 100 | IS 7905-20 |

| | |
|---|---|
| Raspatory, long curved | IU 6020-00 |

| | |
|---|---|
| Twist drill ø3.2, L 195, coil 50, quick coupling | IU 7432-30 |
| Twist drill ø3.2, L 310, coil 50, quick coupling | IU 7432-33 |
| Twist drill ø3.8, L 180, coil 50, quick coupling | IU 7438-18 |
| Twist drill ø3.8, L 250, coil 50, quick coupling | IU 7438-25 |
| Twist drill ø3.8, L 310, coil 50, quick coupling | IU 7438-33 |
| Twist drill ø4.5, L 145, coil 50, quick coupling | IU 7445-00 |

| | |
|---|---|
| Large handle, cannulated, quick coupling | IU 7706-00 |

| | |
|---|---|
| Handle with quick coupling, with torque limiter 3.5Nm | IU 7707-35 |

| | |
|---|---|
| Screwdriver Duo, T25, quick coupling | IU 7835-56 ✱ |
| Screwdriver, hexagonal, ø3.5 for quick coupling | IU 7835-00 ⬢ |

| | |
|---|---|
| Screwdriver Duo long, T25, quick coupling | IU 7835-60 ✱ |
| Screwdriver Duo long, SW 3.5, quick coupling | IU 7835-65 ⬢ |



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Depth gauge for targeting device LOQTEQ® DF 4.5 IU 7940-00

Double drill guide ø3.2/4.5, with spring aided centering IU 8117-50


Load drill guide LOQTEQ® 4.5, compression 1mm IU 8167-01
Load drill guide LOQTEQ® 4.5, compression 2mm IU 8167-02
Load drill guide LOQTEQ® 4.5, adjustable up to 2mm IU 8167-03
Basic insert for load drill guide LOQTEQ® 4.5 IU 8167-05

Drill guide for gliding hole LOQTEQ® 4.5, I-ø 3.9, red IU 8167-10

Reduction sleeve for K-wire ø2.0 IU 8167-15

Reduction sleeve for K-wire ø2.0, long IU 8167-17

Drill guide for gliding hole LOQTEQ® 4.5, l-ø 4.2, red, long — IU 8167-40

Drill guide for distal Femur MIS LOQTEQ® 4.5 — IU 8167-50

Targeting frame LOQTEQ® DF 4.5, right — IU 8175-01
Targeting frame LOQTEQ® DF 4.5, left — IU 8175-11

Handle for targeting frame LOQTEQ® DF 4.5, right — IU 8175-02
Handle for targeting frame LOQTEQ® DF 4.5, left — IU 8175-12

Stabilization bolt for targeting frame LOQTEQ® DF 4.5 — IU 8175-05

Fixing nut for stabilization bolt — IU 8175-06

Marking plug for targeting frame LOQTEQ® DF 4.5 — IU 8175-07



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Marking plug for handle of targeting frame LOQTEQ® DF 4.5 IU 8175-08

Tissue protection sleeve LOQTEQ® DF 4.5, long IU 8175-20

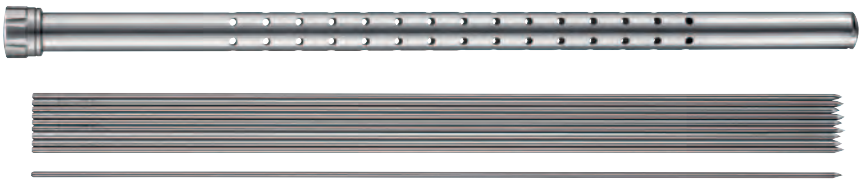
Trocar, LOQTEQ® DF 4.5 IU 8175-40

Stop ring for depth measurement, LF IU 8184-03

Aiming device LOQTEQ® Distal Femur Plate, R IU 8189-01
Aiming device LOQTEQ® Distal Femur Plate, L IU 8189-02

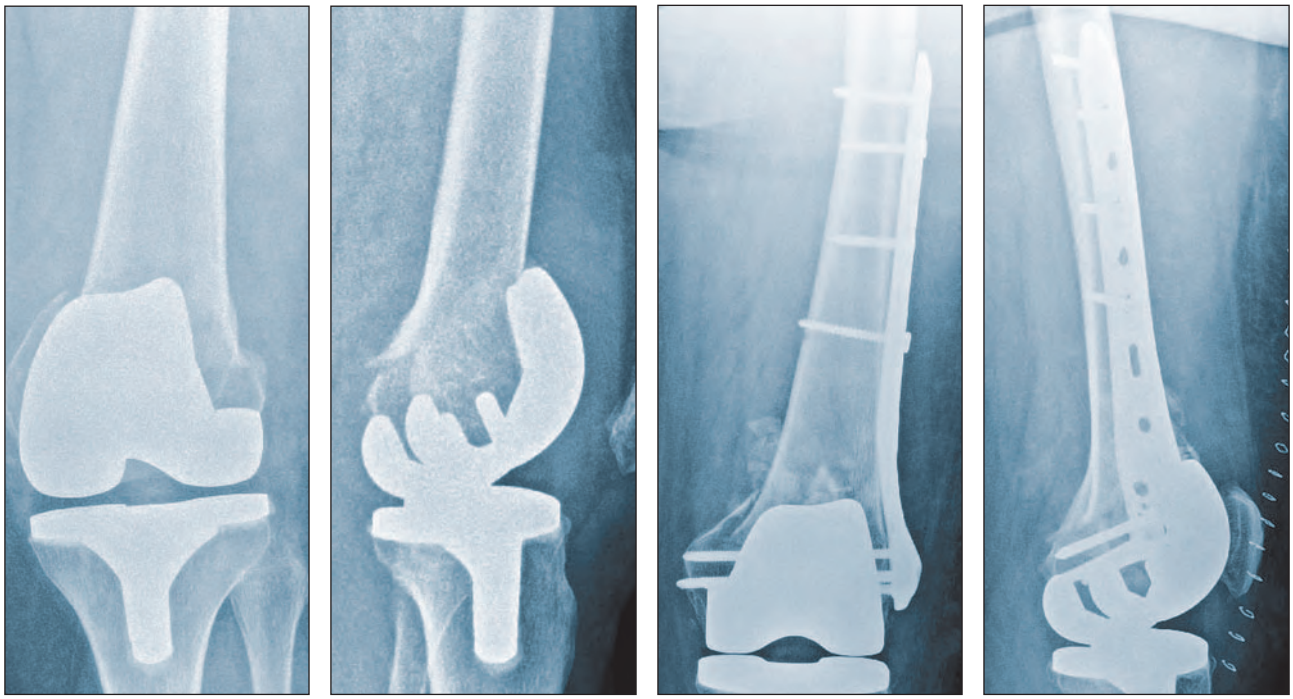
Fixing screw aiming device LOQTEQ® DF Plate IU 8189-03

LOQTEQ® screw guide sleeve 4.5, red IU 8220-45



Caddy for K-wire L 250 IC 0006-25
K-wire with trocar point, ø2.0, L 250 NK 0020-25
Caddy für K-wire L 310 IC 0006-31
K-wire with trocar point, ø2.0, L 310 NK 0020-31

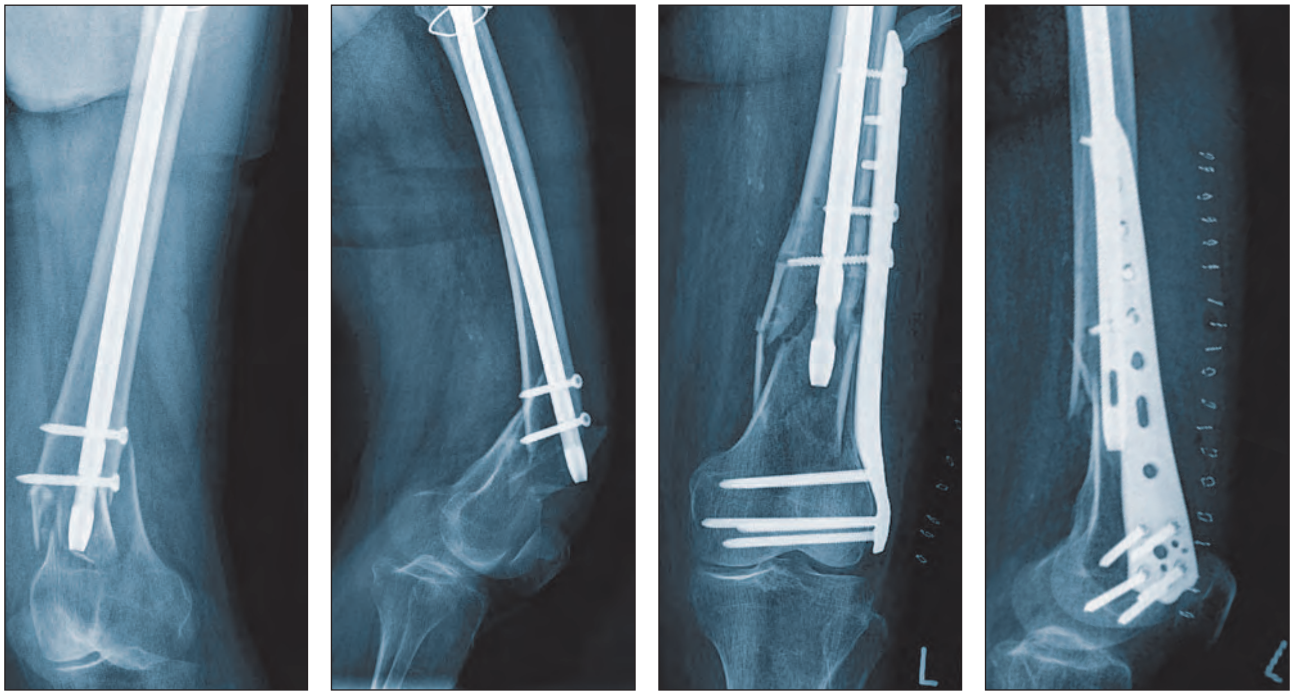
## Periprosthetic femur fracture following total knee arthoplasty Lewis & Rorabeck Type



Preoperative

Postoperative

## Distal femur fracture at the nail ending AO 33-A1



Preoperative

Postoperative

Clinical case and CT images with the kind permission of
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