3.5 mm LCP™

DISTAL FEMORAL OSTEOTOMY PLATES

Surgical Technique

AO approved by AO Technical Commission

DePuy Synthes
THE ORTHOPAEDICS COMPANY OF Johnson & Johnson

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■ Notes

▲ Warnings

Introduction

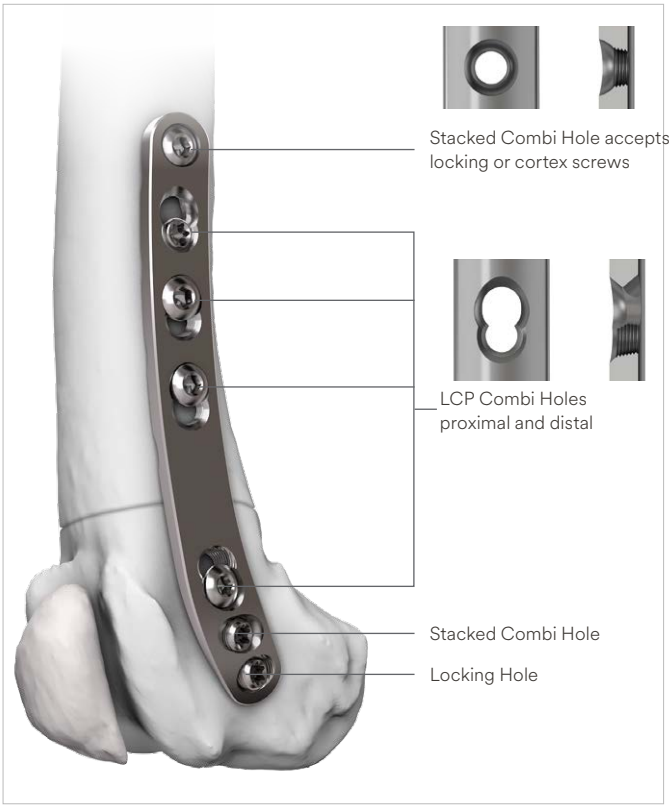
Plate Design

The DePuy Synthes 3.5 mm LCP™ Distal Femoral Osteotomy Plate System merges locking technology with conventional plating techniques. The technical innovation of locking screws and an anatomical contour provide the ability to create a fixed-angle construct while following familiar AO plating principles.

Features:

- Anatomic contour matches the surface of the femur.
- Distal locking screw trajectories targeted to avoid the intercondylar notch and stifle joint.
- Tapered design minimizes soft tissue interference.

- Two lengths to fit most medium to large breed dogs:
  - 7-hole – 88 mm long
  - 8-hole – 101 mm long
- Proximal curvature matches the shape of the femur.
- Compatible with both locking and cortex screws.



Locking Screws

Screw Head

The tapered, double-lead machine thread on the head of the locking screw engages the threads of the locking plate holes. The resulting fixed-angle construct provides stable fixation of the bone fragments without having to compress the plate to the bone. A perfectly contoured plate is therefore not normally required to achieve fixation and maintain proper alignment. This application is appropriate for an opening wedge osteotomy using relative stability with bridging fixation. However, with a closing wedge osteotomy and fixation using absolute stability with compression, known as hybrid fixation, it is imperative that the plate be contoured to the bone appropriately.

Thread Profile

Because locking screws do not compress the plate to the bone, the "pull-out" mode of failure is not applicable to locking screws. For this reason, locking screws are made with a smaller thread profile and a larger core diameter. This results in increased mechanical strength over comparably sized cortex screws.

Drive Mechanism

The StarDrive™ Recess of a locking screw provides three significant improvements over an internal hex drive. First, "stripping" of the screw head is minimized as a failure mode, which results in a much higher tolerance to wear for the screwdriver.[1] Second, the tapered StarDrive Recess provides automatic screw retention without the need for an additional screw holding mechanism. Third, the more efficient StarDrive Recess allows a smaller screw head and allows the screw head to sit flush with the plate.

▲ Caution:

DePuy Synthes, part of the Johnson & Johnson Family of Companies implants and instruments are manufactured with proprietary processes that are precisely tailored to meet unique product specifications. Though other companies may be able to estimate the DePuy Synthes Companies general product design, DePuy Synthes Companies product dimensions are proprietary. The precision design of DePuy Synthes Companies products is very important for long-term product function and optimal fit between implants.

Only the finest quality materials are used to manufacture DePuy Synthes Companies implants. The metals DePuy Synthes Companies uses have been scientifically proven to be of the best biocompatibility and quality available today.

With these features and qualities, the mixing of DePuy Synthes Companies implants with the implants from other companies is not recommended. The overall performance may be compromised due to differences in design, chemical composition, mechanical properties, and quality.

Given these qualities are trade-secret, no competitor of DePuy Synthes Companies can make a genuine claim "the same as DePuy Synthes Companies." Combining implants from other companies with DePuy Synthes Companies implants could reduce product performance. Consequently, it is strongly recommended to not mix parts from different manufacturers.

1Test data on file at DePuy Synthes (Ref Test Report #SET_20110610)

AO Principles

Mission

The AO's mission is promoting excellence in patient care and outcomes in trauma and musculoskeletal disorders.

AO Principles[1,2]

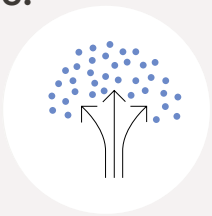
1.

Fracture reduction and fixation to restore anatomical relationships.

2.

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

3.



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

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

1. Müller ME, Allgöwer M, Schneider R, Willenegger H. Manual of Internal Fixation. 3rd ed. Berlin, Heidelberg New York: Springer 1991.
2. Rüedi TP, RE Buckley, CG Moran. AO Principles of Fracture Management. 2nd ed. Stuttgart, New York: Thieme. 2007.

Indications

The DePuy Synthes 3.5 mm LCP Distal Femoral Osteotomy Plates are intended for the treatment of distal femoral deformities and fractures in medium and large breed dogs.

Plate Positioning and Contouring

1

Plate Positioning and Contouring

Instruments	
329.30	Plate Bending Press

1a

Test fit the implant on the surface of the corrected femur to determine need for contouring.

1b

If necessary, surgeon may contour the plate using the plate bending press.

▲ Caution:
Contouring the plate will redirect the angles of the locking screws. Extreme care should be taken to avoid bending the plate through a locking hole as damage to the internal threads may occur.

Screw Insertion

2

The technique below describes lateral application of the 7-hole 3.5 mm LCP Distal Femoral Osteotomy plate following the reduction of a closing wedge osteotomy. Refer to Small Fragment Technique Guide for general instructions on use of instruments.

■ Note:
The recommended screw insertion sequence may be altered at the surgeon's discretion (for example, to avoid screw interference with the jig pin).

2a

Instruments	
310.25	2.5 mm Drill Bit
323.36	3.5 mm Universal Drill Guide
319.01	Depth Gauge for 2.7 mm and 3.5 mm Screws
314.02	2.5 mm Hex Screwdriver

Insert a 3.5 mm cortex screw in the neutral position in the first proximal Combi-Hole.

Screw Insertion

2b

Instruments	
310.25	2.5 mm Drill Bit
323.36	3.5 mm Universal Drill Guide
319.01	Depth Gauge for 2.7 mm and 3.5 mm Screws
314.02	2.5 mm Hex Screwdriver

Insert a 3.5 mm cortex screw in the load position in the first distal Combi-Hole.

2c

Instruments	
312.648	2.8 mm Threaded Drill Guide
310.288	2.8 mm Drill Bit
314.115	StarDrive Screwdriver, T15

In preparation for sulcoplasty, insert a 10 mm long 3.5 mm locking screw in the second-most distal locking hole. The drill hole should be just deep enough to accept the 10 mm screw.

Screw Insertion

2d

Instruments	
310.25	2.5 mm Drill Bit
323.36	3.5 mm Universal Drill Guide
319.01	Depth Gauge for 2.7 mm and 3.5 mm Screws
314.02	2.5 mm Hex Screwdriver

Insert a 3.5 mm cortex screw in the load position in the second proximal Combi-Hole.

2e

Instruments	
312.648	2.8 mm Threaded Drill Guide
310.288	2.8 mm Drill Bit
314.115	StarDrive Screwdriver, T15

Insert a full length 3.5 mm locking screw in the most distal locking hole.

Screw Insertion

2f

Instruments	
310.25	2.5 mm Drill Bit
323.36	3.5 mm Universal Drill Guide
319.01	Depth Gauge for 2.7 mm and 3.5 mm Screws
314.02	2.5 mm Hex Screwdriver
312.648	2.8 mm Threaded Drill Guide
310.288	2.8 mm Drill Bit
314.115	StarDrive Screwdriver, T15

Insert either a 3.5 mm cortex screw or 3.5 mm locking screw in the most proximal stacked combi hole.

2g

With fixation complete perform sulcoplasty as clinically indicated.

Replace the 10 mm long 3.5 mm locking screw that was inserted in step 2c with a full length 3.5 mm locking screw.

Remaining holes may be filled at surgeon's discretion.

▲ Caution:
If any locking screws have been inserted, no further cortex screws should be added as this will introduce unwanted forces.

Product Information

Implants

Plates	
VP4704.R8	3.5 mm LCP Distal Femoral Osteotomy Plate, Right, 8 Holes
VP4704.R7	3.5 mm LCP Distal Femoral Osteotomy Plate, Right, 7 Holes
VP4704.L7	3.5 mm LCP Distal Femoral Osteotomy Plate, Left, 7 Holes
VP4704.L8	3.5 mm LCP Distal Femoral Osteotomy Plate, Left, 8 Holes

3.5 mm Cortex Screws, self-tapping	
VS302.010 – VS302.044	10 mm – 44 mm (in 2 mm increments)
VS302.045	45 mm
VS302.046 – VS302.050	46 mm – 50 mm (in 2 mm increments)
VS302.055 – VS302.070	55 mm – 70 mm (in 5 mm increments)

3.5 mm Locking Screws, self-tapping, with StarDrive Recess	
VS303.010 – VS303.042	10 mm – 42 mm (in 2 mm increments)
VS303.045	45 mm
VS303.048	48 mm
VS303.050	50 mm
VS303.052	52 mm
VS303.055 – VS303.070	55 mm – 70 mm (in 5 mm increments)

Instruments

Small Fragment Instruments

323.36	3.5 mm Universal Drill Guide	
310.25	2.5 mm Drill Bit	
319.01	Depth Gauge for 2.7 mm and 3.5 mm Screws	
314.02	2.5 mm Hex Screwdriver	
312.648	2.8 mm Threaded Drill Guide	
310.288	2.8 mm Drill Bit	
314.115	StarDrive Screwdriver, T15	

Instruments

Bending and Reduction Instruments

329.30	Plate Bending Press

Also Available

VW3001.15	3.0 mm Kirschner Wire with Trocar Point, 150 mm

VQ0001.00	Standard TPLO Jig

398.82	Self Centering Bone Forceps, Serrated Jaw, 18 mm

329.02	Bending Iron, for 4.5 mm Plates, 240 mm Length

329.24	Bending Pliers for Plates

Set Information

Recommended Sets	
103.503 Veterinary	Small Fragment Instrument Set,
103.515	Small Fragment Screw Set, Veterinary

■ Note:
Small Fragment Instrument Set (103.503) consists of Standard Instrument Set (103.501), with graphic case, and Locking Instrument Set (103.502).

For detailed cleaning and sterilization instructions, please refer to: https://www.depuysynthes.com/hcp/cleaning-sterilization

For Instructions for Use and other product related information, please refer to: https://www.e-ifu.com

In Canada, the cleaning and sterilization instructions will be provided with the Loaner shipments

AO Foundation is a 3rd party medically guided, not for profit organization led by an international group of surgeons specialized in the treatment of trauma and disorders of the musculoskeletal system.

In the USA, this product has labeling limitations. See package insert for complete information. USA Law restricts these devices to sale by or on the order of a physician.

Not all products are currently available in all markets.

Note: For recognized manufacturer, refer to the product label.

Please refer to the instructions for use for a complete list of indications, contraindications, warnings and precautions.

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