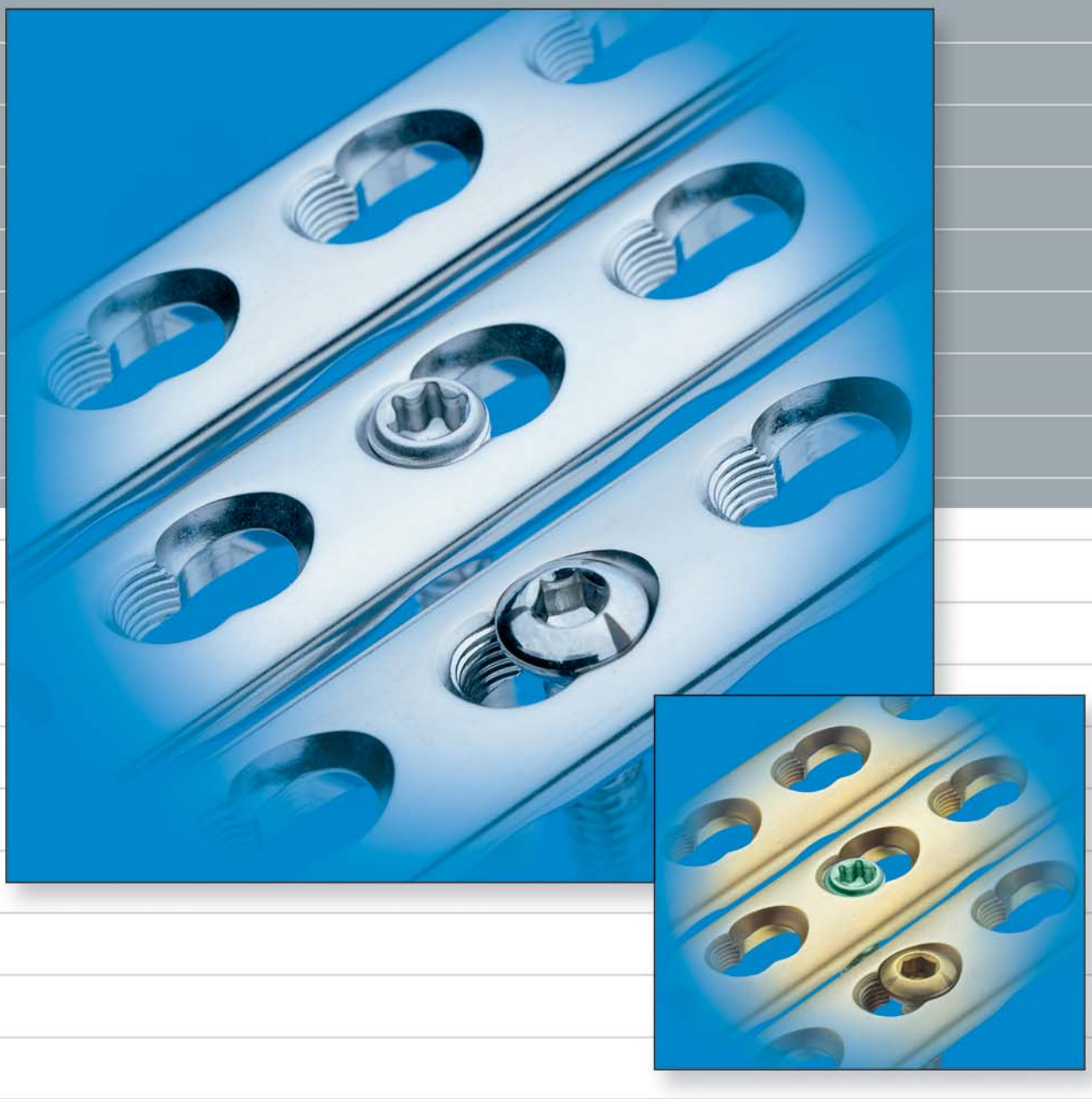
Small Fragment Locking Compression Plate (LCP®) System

Stainless Steel and Titanium

TECHNIQUE GUIDE



SYNTHES®

Original Instruments and Implants of the Association for the Study of Internal Fixation — AO ASIF

Introduction

The aim of any surgical fracture treatment is to reconstruct the anatomy and restore its function. According to the AO ASIF, internal fixation is distinguished by precise reduction, stable fixation, preservation of blood supply and early, functional mobilization. Plate and screw osteosynthesis has been established and clinically recognized for quite some time. Clinical results have been improved by using internal fixation with angular stability (internal fixators) in metaphyseal fractures and in osteopenic bone.

The Synthes Locking Compression Plate (LCP®) is part of a stainless steel and titanium plate and screw system that merges locking screw technology with conventional plating techniques. The Locking Compression Plate System has many similarities to existing plate fixation methods, but with a few important improvements. Locking screws provide the ability to create a fixed-angle construct while utilizing familiar AO plating techniques. A fixed-angle construct provides advantages in osteopenic bone or multifragmentary fractures where traditional screw purchase is compromised. Locking screws do not rely on plate/bone compression to maintain stability, but function similarly to multiple small angled blade plates.

Indications

Synthes Small Fragment Locking Compression Plates (LCP) are intended for fixation of fractures, osteotomies and nonunions of the clavicle, scapula, olecranon, humerus, radius, ulna, pelvis, distal tibia, and fibula, particularly in osteopenic bone.

The following points distinguish treatment using locking screw technology from conventional plating techniques:

- It enables fracture treatment using compression plating with conventional cortex or cancellous bone screws.
- An LCP plate can also be used as an internal fixator and permits stable bridging over shattered zones.
- The LCP system permits the combination of conventional and locking screws.
- Unicortical locking screw permits better vascularity

Important notes:

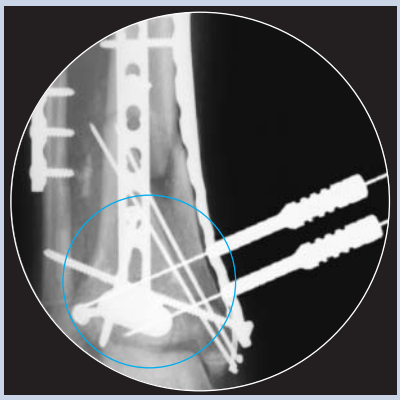
The LCP system applies to many different plate types and is therefore suitable for a large number of fracture types. For that reason, this technique guide does not deal with any specific fracture type. Please refer also to the book AO Principles of Fracture Management,[1] *to AO ASIF courses (www.ao-asif.ch), and to the corresponding special literature.*

1. Thomas P. Rüedi, et al, ed., *AO Principles of Fracture Management,* New York: Thieme, 2000.

AO Principles

Anatomic Reduction

Facilitates restoration of the articular surface by exact screw placement utilizing wire sleeves.



Stable Fixation

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

Preservation of Blood Supply

Tapered end for submuscular plate insertion, improving tissue viability.

Limited-contact plate design reduces plate-to-bone contact, limiting vascular trauma

Early Mobilization

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

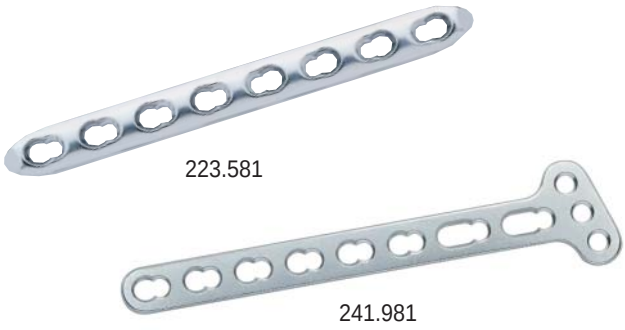
Fixed-angle construct facilitates early callus formation

Features

Locking Compression Plates

The Locking Compression Plates (LCP) have the following LC-DCP® features:

- 80° of longitudinal screw angulation
- 14° of transverse screw angulation
- Uniform hole spacing
- Load (compression) and neutral screw positions



The Locking Compression Plates have combination locking and compression holes (Combi™ holes).

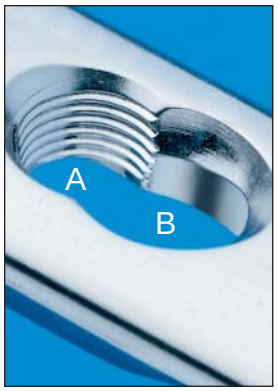
The Combi holes allow placement of standard cortex and cancellous bone screws on one side or threaded conical locking screws on the opposite side of each hole.

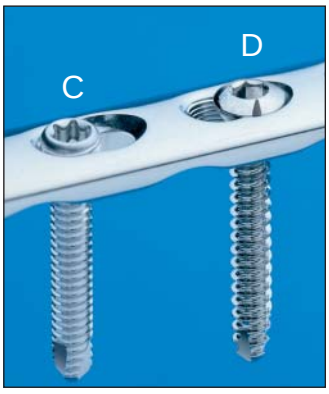
A. Threaded hole section for locking screws

B. Dynamic Compression Unit (DCU) hole section for standard screws

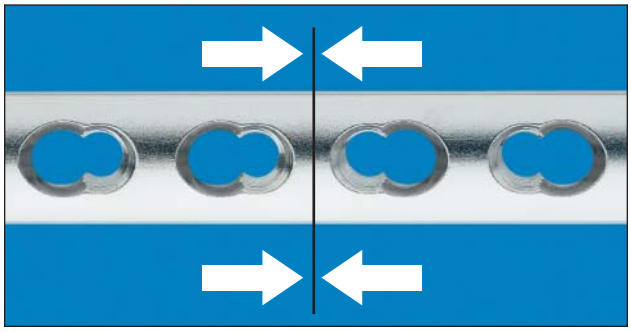
C. Locking screw in threaded side of plate hole

D. Cortex screw in compression side of plate hole





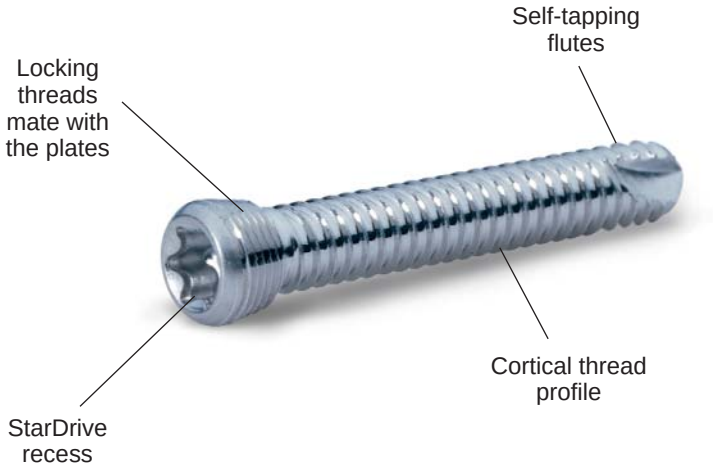
Note: *Holes in straight and reconstruction plates are oriented so that the compression component of the hole is always directed toward the middle of the plate.*



Features (continued)

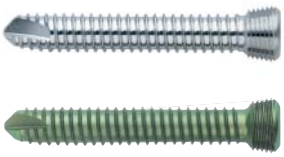
3.5 mm Self-tapping Locking Screws, with StarDrive Recess

The 3.5 mm locking screws mate with the threaded plate holes to form a fixed-angle construct.



Locking Screw Design

The screw design has been modified, as compared to standard 3.5 mm cortex screws, to enhance fixation and facilitate the surgical procedure.



10 mm – 60 mm lengths

New features include:

Conical screw head

The conical head facilitates alignment of the locking screw in the threaded plate hole to provide a secure screw/plate construct.

Large core diameter

The large core diameter 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 results from the larger core diameter, but is acceptable because locking screws do not rely solely on the screw threads to create compression between the plate and the bone to maintain stability.

Drive mechanism

The StarDrive recess provides improved torque transmission to the screw while retaining the screw without the use of a holding sleeve.

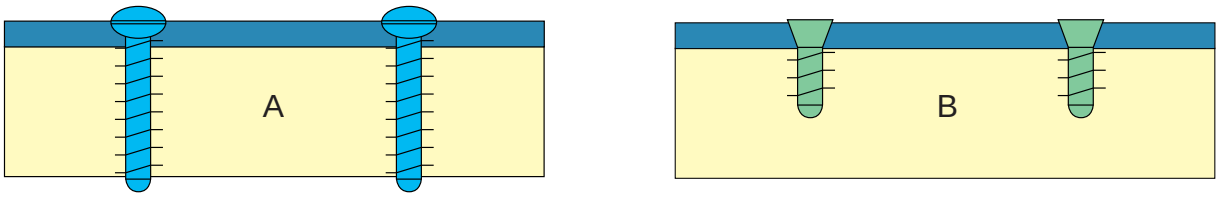
Features (continued)

Unicortical screw fixation

Bicortical screw fixation has long been the traditional method of compressing a plate to the bone where friction between the plate and the bone maintains stability. Screw stability and load transfer are accomplished at two points along the screw: the near and far cortices.

Unicortical locking screws provide stability and load transfer only at the near cortex due to the threaded connection between the plate and the screw. Screw stability and load transfer are accomplished at two points along the screw: the screw head and near cortex. Because the screw is locked to the plate, fixation does not rely solely on the pullout strength of the screw or on maintaining friction between the plate and the bone.

A. Bicortical screws require two (2) cortices to achieve stability
B. Unicortical screws utilize the locked screw and the near cortex to achieve stability



Plates for the Small Fragment LCP® System

223.581

3.5 mm LCP® Plates*

- Available with 2–16 holes (33 mm–215 mm lengths), 18 holes (241 mm), 20 mm (267 mm) and 22 holes (293 mm)
- Limited-contact plate design
- Tapered plate ends for submuscular plate insertion

241.171

3.5 mm LCP® T-Plates, 3 holes head, right angle*

- Available with 3–8 shaft holes (50 mm–97 mm lengths)
- Plate contains Combi holes in the shaft, locking holes in the head

241.172

3.5 mm LCP® T-Plates, 4 holes head, right angle*

- Available with 3–8 shaft holes (50 mm–100 mm lengths)
- Plate contains Combi holes in the shaft, locking holes in the head

241.081

3.5 mm LCP® T-Plates, 3 holes head, oblique right*

- Available with 3–8 shaft holes (52 mm–107 mm lengths)
- Plate contains Combi holes in the shaft, locking holes in the head

241.981

3.5 mm LCP® T-Plates, 3 holes head, oblique left*

- Available with 3–8 shaft holes (52 mm–107 mm lengths)
- Plate contains Combi holes in the shaft, locking holes in the head

* *Also available in titanium. Refer to set [145.434].*

Plates for the Small Fragment LCP® System (continued)

241.401

LCP® One-Third Tubular Plates, with collar*

- Available with 3–10 holes (33 mm–117 mm lengths) and 12 holes (141 mm)
- Plate contains only locking holes, that accept 3.5 mm locking screws, 3.5 mm cortex screws, and 2.7 mm cortex screws.

245.081

3.5 mm LCP® Reconstruction Plates*

Available with 4–14 holes (56 mm–196 mm lengths), 16 holes (224 mm), 18 holes (252 mm), 20 holes (280 mm) and 22 holes (308 mm)

245.401

3.5 mm LCP® Curved Reconstruction Plate

- Available with 4–18 holes in 2-hole increments
- Available in stainless steel only

3.5 mm LCP™ Proximal Humerus Plates*

Distal shaft consists of three or five locking compression holes in the shaft, including one elongated hole to aid in plate positioning. These holes accept 3.5 mm Locking Screws in the threaded portion, and 3.5 mm Cortex Screws, 4.0 mm Cortex Screws, and 4.0 mm Cancellous Bone Screws in the compression portion.

Refer to the *3.5 mm LCP Proximal Humerus Plate Technique Guide*.

Note: *Refer to page 18 for a list of part numbers with the corresponding size and set quantity.*

** Also available in titanium. Refer to set [145.434].*

Featured Instruments for the LCP® Small Fragment System

2.8 mm Drill Bit [310.288]

Used to drill the hole for self-tapping 3.5 mm locking screw.

2.8 mm Threaded Drill Guide [312.648]

Centers the 2.8 mm Drill Bit, permits perpendicular drilling and protects the soft tissue.

Torque Limiting Attachment (TLA), 1.5 Nm quick coupling [511.773]

Used for inserting 3.5 mm locking screws under power; limits the tightening torque to 1.5 Nm.

Note: *Avoid locking the screws to the plate at full speed. DO NOT insert the 3.5 mm locking screws by power without using the TLA.*

Also Available

Torque Limiting Attachment (TLA), 1.5 Nm for use with AO power tools [511.770]

Important: *The TLA is a calibrated instrument. Annual service and recalibration of the TLA by Synthes is recommended.*

StarDrive Screwdriver [314.115]

Used for manual insertion and removal of 3.5 mm Locking Screws.

StarDrive Screwdriver Shaft [314.116]

Mates with the TLA for insertion of 3.5 mm Locking Screws.

Threaded Plate Holders [324.023 and 324.031]

Used as an aid to position the plate on the bone. In less invasive surgical procedures, the plate holders are also useful for plate insertion.

1.6 mm Wire Sleeve [323.023]

Mates with the Threaded Drill Guide and is used to guide the insertion of a 1.6 mm guide wire.

Direct Measuring Device [323.025]

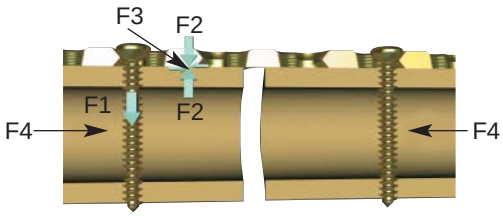
Used over the 1.6 mm guide wire to measure for screw length.

Fixation Principles

The following examples show the biomechanical features of conventional plating techniques, locked or bridge plating techniques, and a combination of both.

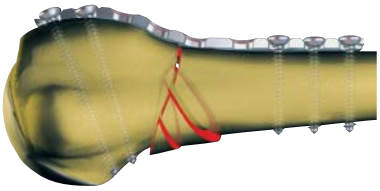
Important note: *Please refer also to the* AO Principles of Fracture Management,[2] *to AO ASIF Courses (www.ao-asif.ch), and to the corresponding special literature.*

Conventional Plating



Absolute Stability

The tensile force (F1) originating from tightening the screws presses the plate onto the bone (F2). The developing friction (F3) between the plate and the bone leads to stable plate fixation. To ensure absolute stability, the friction resistance must be higher than the axial forces (F4) arising during rehabilitation.

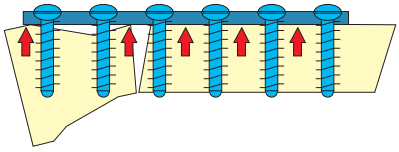


Anatomic Contouring of the Plate

The aim of internal fixation is anatomic reduction, particularly in articular fractures. Therefore, the plate must be contoured to the shape of the bone.

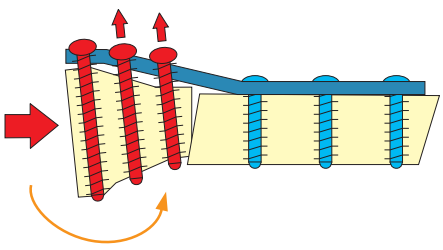
Lag Screw

Interfragmentary compression is accomplished by using a lag screw. This is particularly important in intra-articular fractures which require a precise reduction of the joint surfaces. Lag screws can be angled in the plate hole, allowing placement of the screw perpendicular to the fracture line.



Primary loss of reduction

In conventional plating, even though the bone fragments are correctly reduced prior to plate application, fracture dislocation will result if the plate does not fit the bone. In addition, if the lag screw is not seated perpendicular to the fracture line (e.g., spiral fracture of the distal tibia), shear forces will be introduced. These forces may cause loss of reduction.

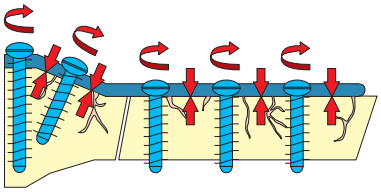


Secondary loss of reduction

Under axial load, postoperative, secondary loss of reduction may occur by toggling of the screws. Since cortex screws do not lock to the plate, the screws cannot oppose the acting force and may loosen, or be pushed axially through the plate holes.

2. Ibid.

Fixation Principles (continued)



Blood supply to the bone

The periosteum is compressed under the plate area, reducing or even interrupting blood supply to the bone. The result is delayed bone healing due to temporary osteoporosis underneath the plate.

Osteoporosis

Due to compromised cortical structure, screws cannot be tightened sufficiently to obtain the compression needed to support the bone. This may cause loosening of the screws and loss of stability, and may jeopardize the reduction.

Standard plating achieves good results in:

1. Good quality bone
2. Fractures which are traditionally fixed with lag screws to achieve direct bone healing.

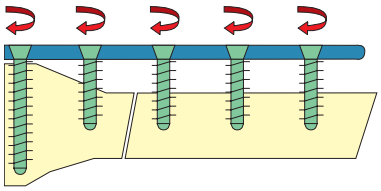
Special attention must be paid to:

1. Osteoporotic bone; during rehabilitation, the load should be kept to a minimum to prevent postoperative loss of reduction.
2. Multifragmentary fractures; the anatomic reduction may be accomplished at the expense of extensive soft tissue trauma and denudation.

Fixation Principles (continued)

Bridge/Locked Plating Using Locking Screws

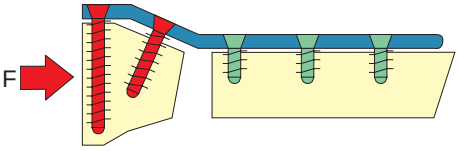
- Screws lock to the plate, forming a fixed-angle construct.
- Bone healing is achieved indirectly by callus formation when using locking screws exclusively.



Maintenance of primary reduction

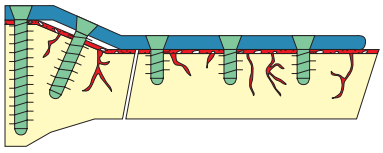
Once the locking screws engage the plate, no further tightening is possible. Therefore, the implant locks the bone segments in their relative positions regardless of degree of reduction.

Precontouring the plate minimizes the gap between the plate and the bone, but an exact fit is not necessary for implant stability. This feature is especially advantageous in minimally or less invasive plating techniques because these techniques do not allow exact contouring of the plate to the bone surface.



Stability under load

By locking the screws to the plate, the axial force is transmitted over the length of the plate. The risk of a secondary loss of the intraoperative reduction is reduced.



Blood supply to the bone

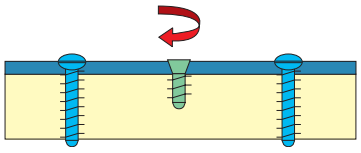
Locking the screw into the plate does not generate additional compression. Therefore, the periosteum will be protected and the blood supply to the bone preserved.

Fixation Principles (continued)

Combined Internal Fixation

The combination of conventional compression plating and locked plating techniques enhances plate osteosynthesis. The result is a combination hole that, depending on the indication, allows standard compression plating, locked/bridge plating or a combination of both.

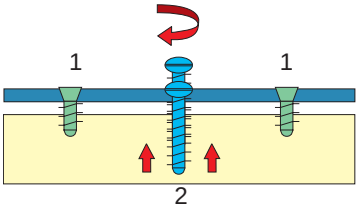
Internal fixation using a combination of locking screws and standard screws

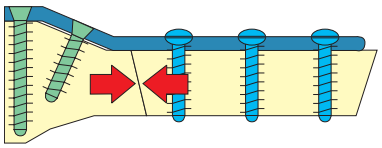


Note: *If a combination of cortex and locking screws is used, a cortex screw should be inserted first to pull the plate to the bone.*

If locking screws (1) have been used to fix a plate to a fragment, subsequent insertion of a standard screw (2) in the same fragment without loosening and retightening the locking screw is NOT RECOMMENDED.

Note: *If a locking screw is used first, care should be taken to ensure that the plate is held securely to the bone to avoid spinning of the plate about the bone.*





Dynamic compression

Once the metaphyseal fragment has been fixed with locking screws, the fracture can be dynamically compressed using standard screws in the DCU portion of the Combi hole.

Locked and standard plating techniques

- First, use lag screws to anatomically reconstruct the joint surfaces.
- The behavior of a locking screw is not the same as that of a lag screw. With the locked plating technique, the implant locks the bone segments in their relative positions regardless of how they are reduced.
- A plate used as a locked/bridge plate does not produce any additional compression between the plate and the bone.
- The unicortical insertion of a locking screw causes no loss of stability.

Surgical Technique

1 Plate selection

The plates are available in various lengths and configurations similar to the Synthes Small Fragment Set. If necessary, use a bending template to determine plate length and configuration.

2 Contouring

Use the bending instruments to contour the Locking Compression Plate to the anatomy.

Note: *The plate holes have been designed to accept some degree of deformation. When bending the plate, place the bending irons on two consecutive holes. This ensures that the threaded holes will not be distorted. Significant distortion of the locking holes will reduce locking effectiveness.*

Important note: *Please refer to the* AO Principles of Fracture Management.[3]

3 Reduction and temporary plate placement

The plate may be temporarily held in place with standard plate holding forceps or the Push-Pull Reduction Device [324.024].

Note: *The middle of the plate should be positioned over the fracture site if compression of the fracture fragments is desired.*

The Push-Pull Reduction device is designed to temporarily hold the plate to the bone through a plate hole. The device is self-drilling and connects with the Synthes quick connection for power insertion. Insert into near cortex only. After power insertion, turn the collet clockwise until it pulls the plate securely to the bone.

Note: *Care should be taken to avoid inserting this device in a hole that will be needed immediately for plate fixation. However, the device may be removed and a screw inserted through the same plate hole.*

A Threaded Plate Holder [324.023 or 324.031] can also be used as an aid to position the plate on the bone. The plate holder may also function as an insertion handle for use with minimally invasive plating techniques.

3. Ibid.

Surgical Technique (continued)

4 Screw insertion

Determine whether standard cortex screws, cancellous screws or 3.5 mm locking screws will be used for fixation. A combination of all may be used.

Important: *2.7 mm cortex screws can only be used in the round holes of the Right-Angle T-Plates, Oblique T-Plates, and One-Third Tubular Plates.*

Note: *If a combination of cortex, cancellous and locking screws is used, a standard screw should be used first to pull the plate to the bone.*

Warning: *If a locking screw is used first, care should be taken to ensure that the plate is held securely to the bone to avoid spinning of the plate about the bone.*

Insertion of a cortex or cancellous bone screw

Use the 3.5 mm Universal Drill Guide [323.36] for an eccentric (compression) or neutral (buttress) insertion of cortex screws.

Note: *The 3.5 mm LC-DCP® Drill Guide [323.35] and the 3.5 mm DCP® Drill Guide [322.32] are NOT suitable for use with LCP plates.*

Neutral position

Neutral insertion of a standard screw

When pressing the universal drill guide into the DCU portion of the LCP plate, it will center itself and allow neutral predrilling.

Dynamic compression

Dynamic compression, eccentric insertion of a cortex screw

To drill a hole for dynamic compression, place the universal drill guide eccentrically at the edge of the DCU portion of the LCP plate hole, without applying pressure. Tightening of the cortex screws will result in dynamic compression corresponding to that of the LC-DCP.

Surgical Technique (continued)

4 Screw insertion (continued)

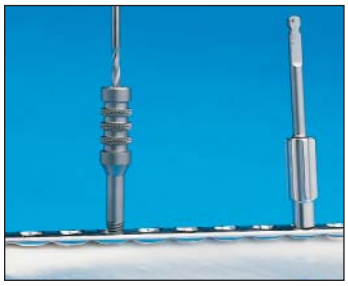
Insertion of 3.5 mm Locking Screws

Reminder: *The locking screw is not a lag screw. Use standard screws when requiring a precise anatomical reduction (e.g., joint surfaces) or interfragmentary compression. Before inserting the first locking screw, perform anatomical reduction and fix the fracture with lag screws, if necessary. After the insertion of locking screws, an anatomical reduction will no longer be possible without loosening the locking screw.*

1 Screw the 2.8 mm Threaded Drill Guide [312.648] into an LCP plate hole until fully seated.

Note: *Since the direction of a locking screw is determined by plate design, final screw position may be verified with a K-wire prior to insertion. This becomes especially important when the plate has been contoured or applied in metaphyseal regions around joint surfaces. (Refer to "Screw placement verification" on p.16)*

Warning: *Do not try to bend the plate using the Threaded Drill Guide because damage may occur to the plate hole threads.*



2 Use the 2.8 mm Drill Bit [310.288] to drill the desired depth.

3 Remove the drill guide.

4 Use the Depth Gauge [319.01] to determine screw length.

Surgical Technique (continued)

5 Insert the locking screw under power using a Torque Limiting Attachment [511.770 or 511.773] and StarDrive Screwdriver Shaft [314.116].

Note: *The screw is securely locked to the plate when a"click" is heard.*

Incorrect

Warning: *Never use the StarDrive Screwdriver Shaft [314.116] directly with power equipment unless used with a Torque Limiting Attachment (TLA).*

Alternative Method of Locking Screw Insertion

Use the StarDrive Screwdriver [314.115] to manually insert the appropriate length locking screw. Carefully tighten the locking screw, as excessive force is not necessary to produce effective screw-to-plate locking.

Surgical Technique (continued)

5 Screw placement verification

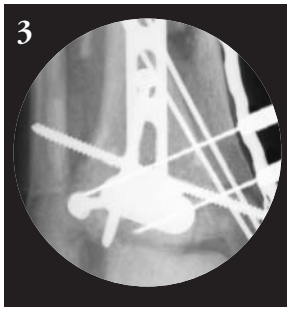
Since the direction of a locking screw is determined by plate design, final screw position may be verified with a K-wire prior to insertion. This becomes especially important when the plate has been contoured or applied in metaphyseal regions around joint surfaces.

1 With the 2.8 mm Threaded Drill Guide in place, insert the 1.6 mm Wire Sleeve [323.023] into the threaded drill guide.

2 Insert a threaded 1.6 mm Kirschner Wire [292.71] through the wire sleeve and drill to the desired depth.

3 Verify K-wire placement under image intensification to determine if final screw placement is acceptable.

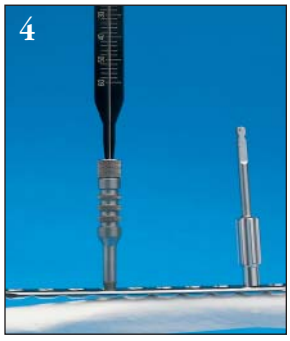
Important: *The K-wire position represents the final position of the locking screw. Confirm that the K-wire does not enter the joint.*



4 Measurement may be taken by sliding the tapered end of the Direct Measuring Device [323.025] over the K-wire down to the wire sleeve.

Remove the Direct Measuring Device, K-wire and 1.6 mm wire sleeve, leaving the threaded drill guide intact.

Use the 2.8 mm Drill Bit to drill the near cortex. Remove the threaded drill guide. Insert the appropriate length locking screw.



6 Postoperative treatment

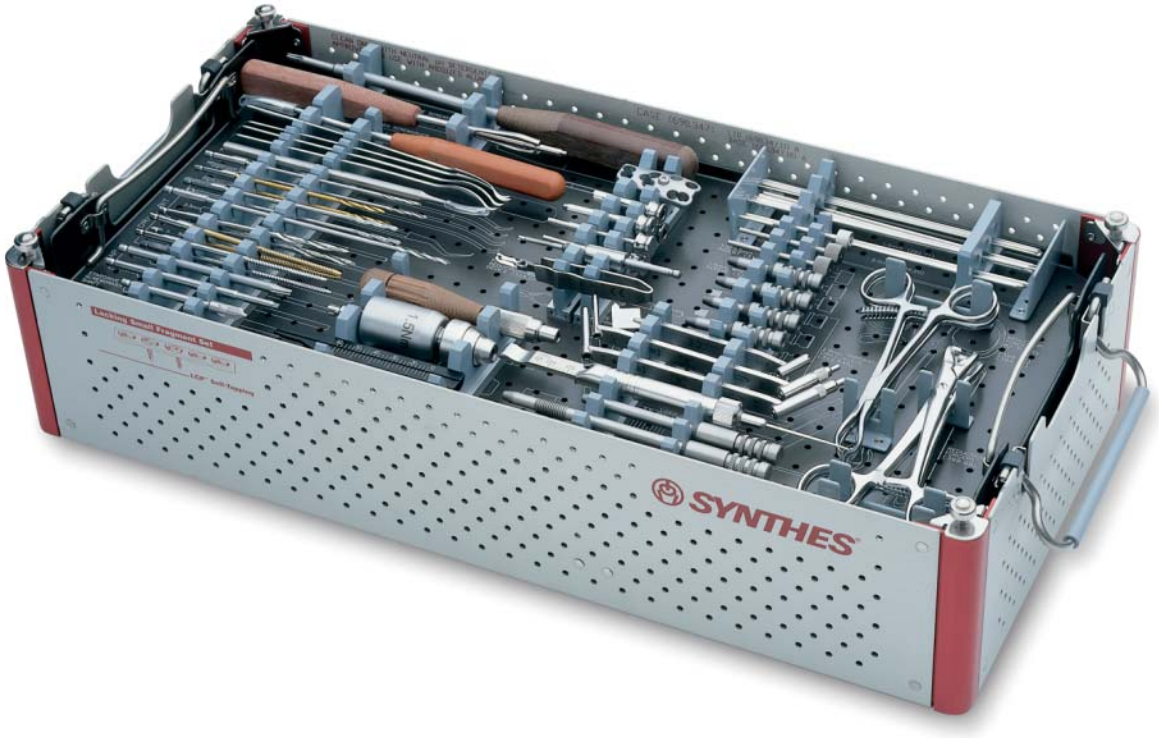
Postoperative treatment with Locking Compression Plates does not differ from conventional internal fixation procedures.

7 Implant removal

To remove locking screws, unlock all screws from the plate; then remove the screws completely from the bone. This prevents simultaneous rotation of the plate when removing the last locking screw.

Small Fragment LCP®
Instrument and Implant Set

Stainless Steel [105.434]
Titanium [145.434]



Graphic Cases

690.347	Small Fragment LCP® Instrument and Implant Set Graphic Case (includes screw rack 690.347.30)
690.410	Small Fragment LCP® Instrument and Titanium Implant Set Graphic Case (includes screw rack 690.411)

Screw Racks may also be ordered separately

690.347.30	Screw Rack, for Small Fragment LCP® Instrument and Implant Set Graphic Case
690.411	Screw Rack, for Small Fragment LCP® Instrument and Titanium Implant Set Graphic Case

Implants for the Small Fragment LCP® System

3.5 mm LCP® Plates

STAINLESS STEEL	TITANIUM	
223.551	423.551	5 holes, 72 mm, 2 ea.
223.561	423.561	6 holes, 85 mm, 2 ea.
223.581	423.581	8 holes, 111 mm, 2 ea.
223.591	423.591	9 holes, 124 mm, 2 ea.
223.601	423.601	10 holes, 137 mm, 2 ea.
223.621	423.621	12 holes, 163 mm, 2 ea.
223.641	423.641	14 holes, 189 mm, 2 ea.
Also Available		
223.521	423.521	2 holes, 33 mm
223.531	423.531	3 holes, 46 mm
223.541	423.541	4 holes, 59 mm
223.571	423.571	7 holes, 98 mm
223.611	423.611	11 holes, 150 mm
223.631	423.631	13 holes, 176 mm
223.651	423.651	15 holes, 202 mm
223.661	423.661	16 holes, 215 mm
223.671	423.671	18 holes, 241 mm
223.681	423.681	20 holes, 267 mm
223.691	423.691	22 holes, 293 mm

3.5 mm LCP® T-Plates, 3 holes head, oblique right

241.031	441.031	3 shaft holes, 52 mm
241.041	441.041	4 shaft holes, 63 mm
241.051	441.051	5 shaft holes, 74 mm
241.071	441.071	7 shaft holes, 96 mm
Also Available		
241.061	441.061	6 shaft holes, 85 mm
241.081	441.081	8 shaft holes, 107 mm

3.5 mm LCP® T-Plates, 3 holes head, oblique left

241.931	441.931	3 shaft holes, 52 mm
241.941	441.941	4 shaft holes, 63 mm
241.951	441.951	5 shaft holes, 74 mm
241.971	441.971	7 shaft holes, 96 mm
Also Available		
241.961	441.961	6 shaft holes, 85 mm
241.981	441.981	8 shaft holes, 107 mm

3.5 mm LCP® T-Plates, 3 holes head, right angle

241.131	441.131	3 shaft holes, 50 mm
241.151	441.151	5 shaft holes, 67 mm
241.171	441.171	7 shaft holes, 87 mm
Also Available		
241.142	441.142	4 shaft holes, 57 mm
241.162	441.162	6 shaft holes, 77 mm
241.181	441.181	8 shaft holes, 97 mm

3.5 mm LCP® T-Plates, 4 holes head, right angle

STAINLESS STEEL	TITANIUM	
241.141	441.141	4 shaft holes, 56 mm
241.161	441.161	6 shaft holes, 78 mm
Also Available		
241.132	441.132	3 shaft holes, 50 mm
241.152	441.152	5 shaft holes, 67 mm
241.172	441.172	7 shaft holes, 89 mm
241.182	441.182	8 shaft holes, 100 mm

LCP® One-Third Tubular Plates, with collar

241.351	441.351	5 holes, 57 mm, 2 ea.
241.361	441.361	6 holes, 69 mm, 2 ea.
241.371	441.371	7 holes, 81 mm, 2 ea.
241.381	441.381	8 holes, 93 mm
241.401	441.401	10 holes, 117 mm
241.421	441.421	12 holes, 141 mm
Also Available		
241.331	441.331	3 holes, 33 mm
241.341	441.341	4 holes, 45 mm
241.391	441.391	9 holes, 105 mm

3.5 mm LCP® Proximal Humerus Plates

241.901	441.901	6 holes head, 3 holes shaft, 90 mm
241.903	441.903	6 holes head, 5 holes shaft, 114 mm

3.5 mm LCP® Reconstruction Plates

245.051	445.051	5 holes, 70 mm, 2 ea.
245.061	445.061	6 holes, 84 mm, 2 ea.
245.071	445.071	7 holes, 98 mm, 2 ea.
245.081	445.081	8 holes, 112 mm, 2 ea.
245.101	445.101	10 holes, 140 mm, 2 ea.
245.121	445.121	12 holes, 168 mm, 2 ea.
Also Available		
245.041	445.041	4 holes, 56 mm
245.091	445.091	9 holes, 126 mm
245.111	445.111	11 holes, 154 mm
245.131	445.131	13 holes, 182 mm
245.141	445.141	14 holes, 196 mm
245.161	445.161	16 holes, 224 mm
245.181	445.181	18 holes, 252 mm
245.201	445.201	20 holes, 280 mm
245.221	445.221	22 holes, 308 mm

3.5 mm LCP® Curved Reconstruction Plates (stainless steel only)

Also Available

245.341	4 holes, 55 mm	245.421	12 holes, 149 mm
245.361	6 holes, 82 mm	245.441	14 holes, 166 mm
245.381	8 holes, 106 mm	245.461	16 holes, 180 mm
245.401	10 holes, 129 mm	245.481	18 holes, 190 mm

Implants for the Small Fragment LCP® System (continued)

Screws

STAINLESS STEEL	TITANIUM	
202.810–202.838	402.810–402.838	2.7 mm Cortex Screws, self-tapping, 10 mm–38 mm,* 3 ea.
202.840–202.855	402.840–402.855	2.7 mm Cortex Screws, self-tapping, 40 mm–55 mm,** 3 ea.
204.216–204.238	404.216–404.238	3.5 mm Shaft Screws, 16 mm–38 mm,* 2 ea.
204.810–204.850	404.810–404.850	3.5 mm Cortex Screws, self-tapping, 10 mm–38 mm,* 40 mm–50 mm,** 6 ea.
204.855–204.860		3.5 mm Cortex Screws, self-tapping, 55 mm–60 mm,** 4 ea.
	404.855	3.5 mm Cortex Screws, self-tapping, 55 mm, 4 ea.
206.010–206.012	406.010–406.012	4.0 mm Cancellous Bone Screws, fully threaded, 10 mm–12 mm,* 4 ea.
206.014–206.020	406.014–406.020	4.0 mm Cancellous Bone Screws, fully threaded, 14 mm–20 mm,* 8 ea.
206.022–206.028	406.022–406.028	4.0 mm Cancellous Bone Screws, fully threaded, 22 mm–28 mm,* 4 ea.
206.030–206.060	406.030–406.060	4.0 mm Cancellous Bone Screws, fully threaded, 30 mm–60 mm,** 4 ea.
207.010–207.028	407.010–407.028	4.0 mm Cancellous Bone Screws, partially threaded, 10 mm–28 mm,* 4 ea.
207.030–207.050	407.030–407.050	4.0 mm Cancellous Bone Screws, partially threaded, 30 mm–50 mm,** 8 ea.

3.5 mm Locking Screw, self-tapping with StarDrive recess

212.101	412.101	10 mm, 5 ea.	212.111	412.111	30 mm, 5 ea.
212.102	412.102	12 mm, 5 ea.	212.112	412.112	32 mm, 5 ea.
212.103	412.103	14 mm, 5 ea.	212.113	412.113	34 mm, 5 ea.
212.104	412.104	16 mm, 5 ea.	212.115	412.115	36 mm, 5 ea.
212.105	412.105	18 mm, 5 ea.	212.116	412.116	38 mm, 5 ea.
212.106	412.106	20 mm, 5 ea.	212.117	412.117	40 mm, 4 ea.
212.107	412.107	22 mm, 5 ea.	212.119	412.119	45 mm, 4 ea.
212.108	412.108	24 mm, 5 ea.	212.121	412.121	50 mm, 4 ea.
212.109	412.109	26 mm, 5 ea.	212.123	412.123	55 mm, 4 ea.
212.110	412.110	28 mm, 5 ea.	212.124	412.124	60 mm, 4 ea.

Other Implants

219.98	419.98	Washer, 7.0 mm, 6 ea.
292.12	492.12	1.25 mm Kirschner Wire, 150 mm, 1 pkg. of 10
292.71	292.71†	1.6 mm Kirschner Wire with Thread, 150 mm, 5 mm thread length, 1 pkg. of 10
292.20	492.20	2.0 mm Kirschner Wire, 150 mm, 1 pkg. of 10

* 2 mm increments
** 5 mm increments
† Stainless steel

Instruments

310.21	2.0 mm Drill Bit, quick coupling, 125 mm, 2 ea.
310.25	2.5 mm Drill Bit, quick coupling, 110 mm, gold, 2 ea.
315.28	2.7 mm Three-Fluted Drill Bit, quick coupling, 125 mm, 2 ea.
310.288	2.8 mm Drill Bit, quick coupling, 165 mm, 2 ea.
310.35	3.5 mm Drill Bit, quick coupling, 110 mm, 2 ea.
310.89	Countersink, for 3.5 mm Cortex and 4.0 mm Cancellous Bone Screws
311.32	Tap for 3.5 mm Cortex Screws, gold, 110 mm, 2 ea.
311.34	Tap for 4.0 mm Cancellous Bone Screws, 110 mm, 2 ea.
311.43	Handle, with quick coupling
312.20	2.0 mm Parallel Drill Guide and Drill Sleeve
312.30	3.5 mm/2.5 mm Insert Drill Sleeve
312.648	2.8 mm Threaded Drill Guide, 4 ea.
314.115	StarDrive Screwdriver, T15, self-retaining
314.116	StarDrive Screwdriver Shaft, quick coupling, T15, self-retaining
314.02	Small Hexagonal Screwdriver with Holding Sleeve
314.03	Small Hexagonal Screwdriver Shaft, quick coupling
319.01	Depth Gauge, for 2.7 mm and small screws
319.39	Sharp Hook
319.97	Screw Forceps
323.023	1.6 mm Wire Sleeve, 2 ea.
323.025	Direct Measuring Device
323.050	Insertion Guide
323.053	3.5 mm Locking Screw Sleeve, 2 ea.
323.054	2.8 mm Drill Sleeve, 2 ea.
323.055	1.6 mm Wire Sleeve, 2 ea.
324.023	Threaded Plate Holder
324.031	Threaded Plate Holder, long
324.024	Push-Pull Reduction Device
323.26	2.7 mm Universal Drill Guide
323.36	3.5 mm Universal Drill Guide
329.04	Bending Iron, for 2.7 mm and 3.5 mm plates
329.05	Bending Iron, for 2.7 mm and 3.5 mm plates
329.07	Bending Iron, for 2.7 mm and 3.5 mm Reconstruction Plates, 2 ea.
329.87	Bending Template, 7 holes
329.89	Bending Template, 9 holes
329.820	Bending Template, 12 holes
391.82	Wire-Bending Pliers
392.00	Bending Iron, for 1.25 mm, 1.6 mm and 2.0 mm Kirschner Wires
398.40	Reduction Forceps with Points, narrow, ratchet
398.41	Reduction Forceps with Points, broad, ratchet
399.99	Reduction Forceps, with serrated jaw, ratchet, 2 ea.
398.80*	Self-centering Bone Forceps, extra small serrated jaw, speed lock
398.811	Plate Holding Forceps with swivel foot
399.091**	Bone Holding Forceps, soft ratchet, for plate widths up to 9 mm
399.19	Hohmann Retractor, 8 mm width, small, 2 ea.
399.49	Hohmann Retractor, for small fragments, 15 mm width, 2 ea.
399.36	Periosteal Elevator, 6 mm width, curved blade, round edge
511.773	Torque Limiting Attachment, 1.5 Nm, quick coupling

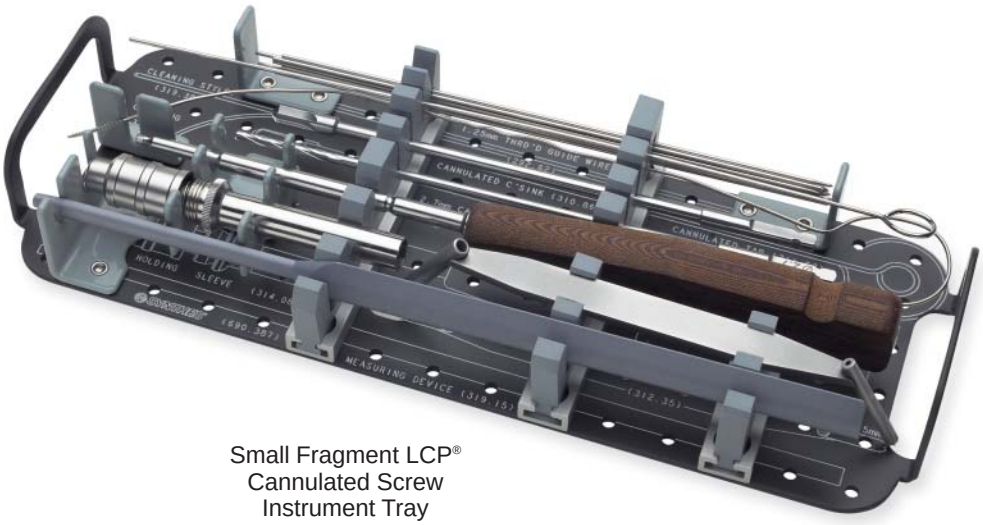
Also Available

329.15	Bending Pliers, for 2.7 and 3.5 mm plates
329.29	Bending Pliers, for 2.7 and 3.5 mm Reconstruction Plates
511.770	Torque Limiting Attachment, 1.5 Nm

* Included in Small Fragment LCP® Instrument and Titanium Implant Set [145.434]
** Included in Small Fragment LCP® Instrument and Implant Set [105.434]

Also Available

105.436 Small Fragment LCP® Instrument Set for Cannulated Screws



Small Fragment LCP®
Cannulated Screw
Instrument Tray
[690.387]

Instruments in Set 105.436

292.62	1.25 mm Threaded Guide Wire, 150 mm, 1pkg. of 10
310.67	2.7 mm Cannulated Drill Bit, quick coupling, 160 mm
310.86	Cannulated Countersink for 3.5 mm and 4.0 mm cannulated screws
311.63	Cannulated Tap for 4.0 mm cannulated screws, 147 mm
312.35	2.7 mm/1.25 mm Double Drill Sleeve
314.08	Holding Sleeve
314.29	Cannulated Hexagonal Screwdriver
319.15	Cannulated Screw Measuring Device for 3.5 mm and 4.0 mm cannulated screws
319.25	1.35 mm Cleaning Brush
319.38	1.25 mm Cleaning Stylet

Also Available for use with Set 105.436

690.383	Screw Rack, for Small Fragment LCP® Set and 4.0 mm Cannulated Screws
690.412	Screw Rack, for Small Fragment LCP® Set and 4.0 mm Titanium Cannulated Screws
Screws	
207.610–207.650	4.0 mm Cannulated Screws, short thread 10 mm–50 mm, 2 mm increments
407.610–	4.0 mm Titanium Cannulated Screws, short thread
407.650	10 mm–50 mm, 2 mm increments

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