DePuy Synthes
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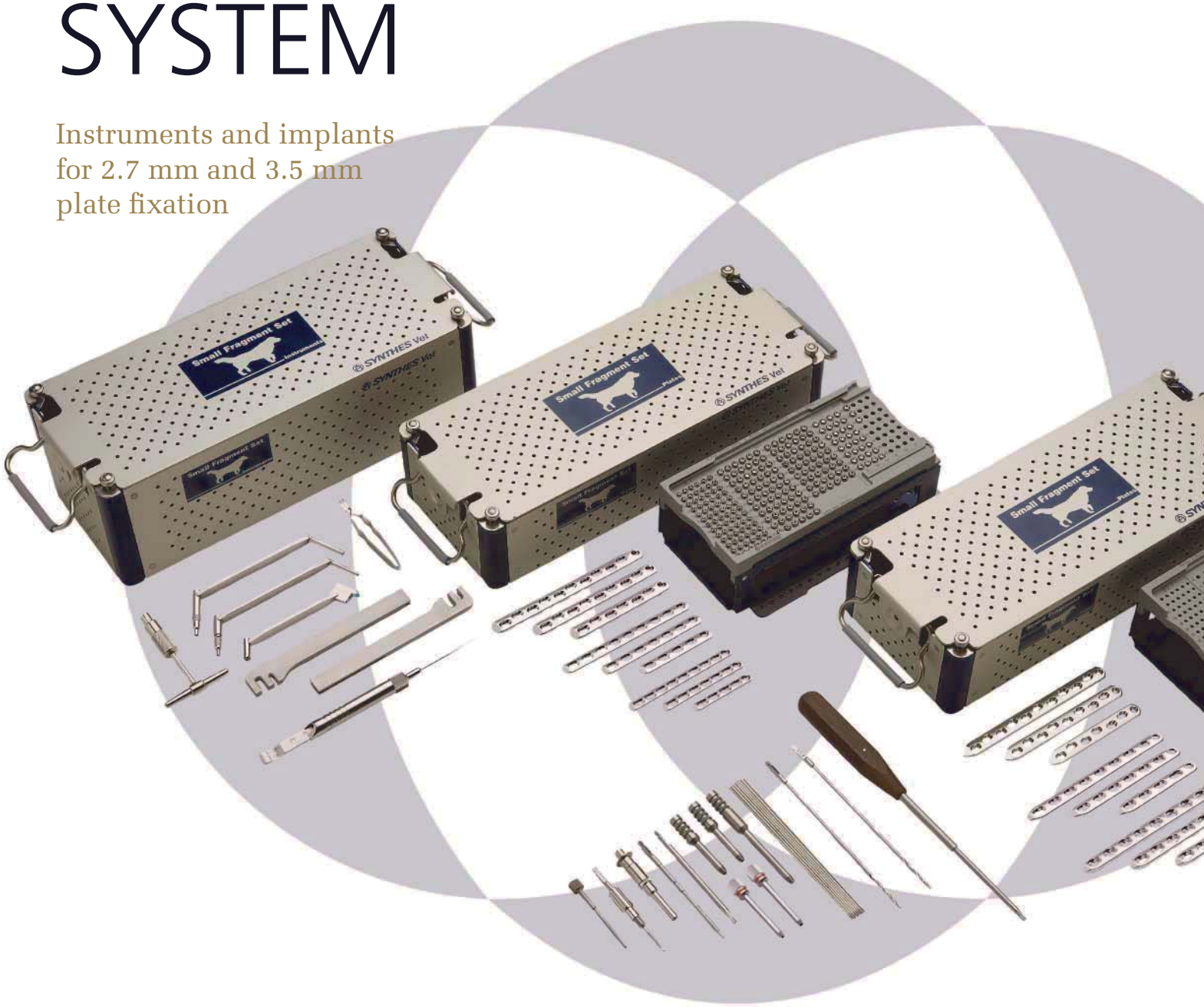
SMALL FRAGMENT SYSTEM

Instruments and implants for 2.7 mm and 3.5 mm plate fixation



SURGICAL TECHNIQUE

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Image intensifier control

SMALL FRAGMENT SYSTEM

Instruments and implants for 2.7 mm and 3.5 mm plate fixation.

THE SMALL FRAGMENT STANDARD SYSTEM

The Small Fragment Standard System contains the 2.7 mm, 3.5 mm and 4.0 mm implants and related instruments required for standard compression plating.

Features

- Equipment for LC-DCP and DCP plating systems
- Can be upgraded to LCP system
- Cases are organized in general order of use
- Compact case sizes fit most tabletop autoclaves
- Plate case stores a full range of 2.7 mm, 3.5 mm, and 3.5 mm Broad DCP, LC-DCP or LCP plates
- Includes auxiliary bins for storing additional equipment

The standard system consists of:

- Small Fragment Standard Instrument Set (103.501)
- Small Fragment Standard Screw Set (103.518)
- Small Fragment DCP Plate Set (103.513)
  and/or
  Small Fragment LC-DCP Plate Set (103.514)

THE SMALL FRAGMENT LOCKING SYSTEM

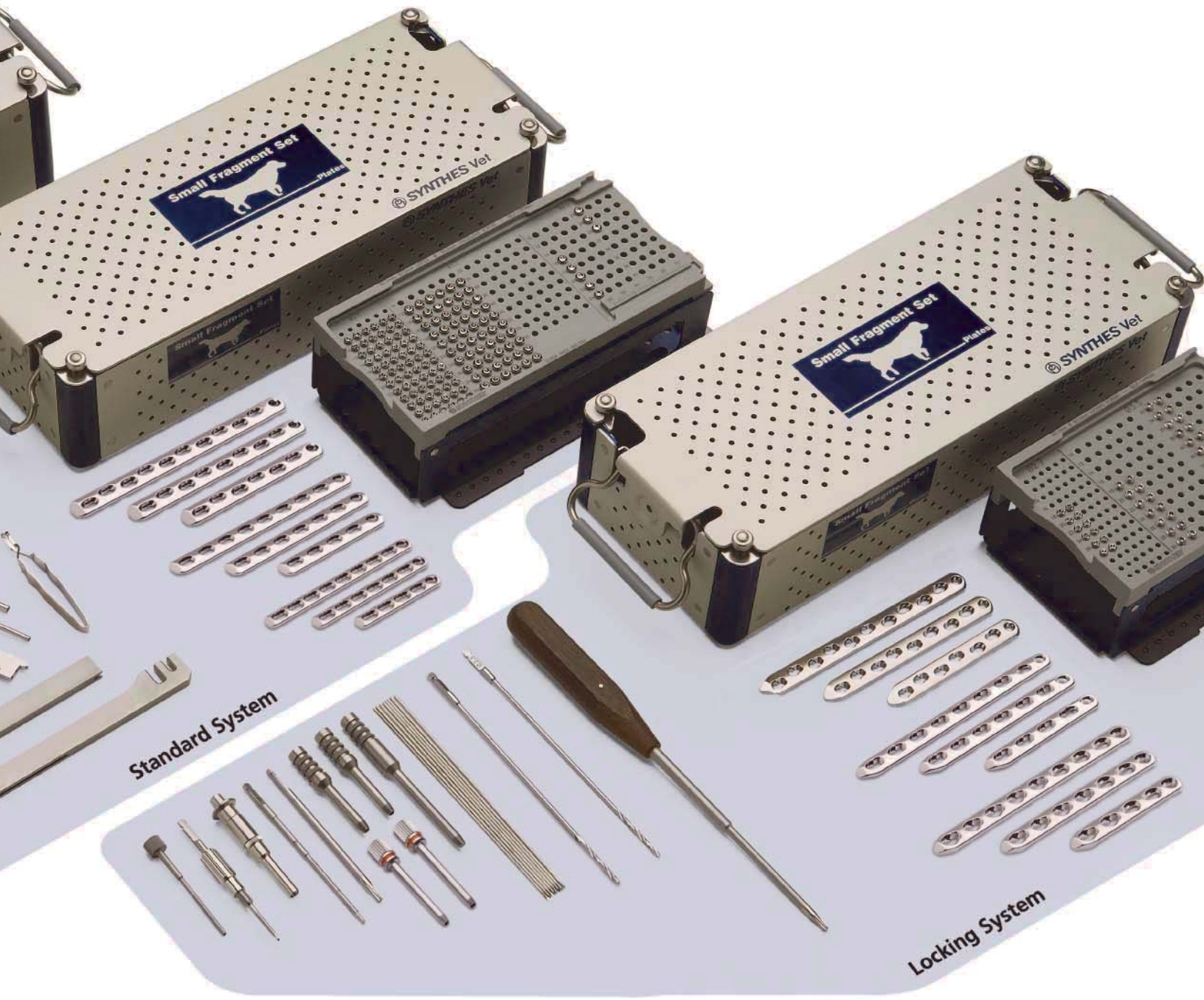
The Small Fragment Locking System contains the 2.7 mm and 3.5 mm LCP implants and related instruments required for locked plating.

Features

- Dedicated equipment designed for LCP plating
- Locking instruments fit in Standard Instrument Case (690.591)
- All cases are organized in general order of use
- Compact case sizes fit most tabletop autoclaves

The locking system consists of:

- Small Fragment Locking Instrument Set (103.502)
- Small Fragment Locking Screw Set (103.517)
- Small Fragment LCP Plate Set (103.516)


Small Fragment Set
Plates
SYNTHES Vet
Small Fragment Set
Plates
SYNTHES Vet
Standard System
Locking System

LCP (Locking Compression Plate)

- Locking screws create a fixed-angle construct, resulting in angular stability
- Tapered end for submuscular plate insertion, minimizing tissue trauma (Figure 1)
- Limited-contact plate design reduces plate-to-bone contact, protecting vascularity
- Centrally located hole at one end for metaphyseal fracture repair

Figure 1

LCP plate holes

- Combi holes allow placement of conventional screws on one side or locking screws on the opposite side of each hole (Figure 2)
  - A. Threaded hole section for locking screws
  - B. Dynamic compression unit (DCU) hole section for conventional screws
  - C. Locking screw in threaded side of plate hole
  - D. Cortex screw in compression side of plate hole
- Stacked Combi hole at plate end accepts either cortex, cancellous or locking screws (Figure 3)

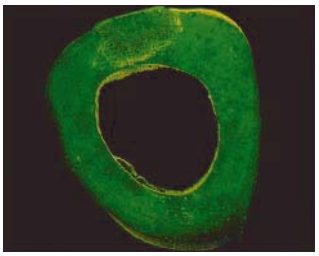
Figure 2

Figure 3

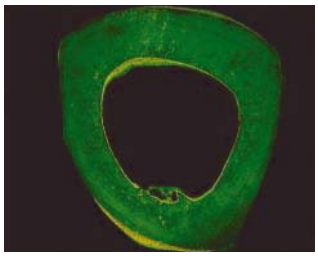
LC-DCP (Limited-Contact Dynamic Compression Plate)

Grooved undersurface

- Provides limited contact between the plate and bone, minimizing the chance for temporary porosis under the plate
- Allows periosteal callus formation at the fracture site



Bone loss observed beneath a full-contact plate[1, 2]



Reduced bone loss beneath a limited-contact plate[1, 2]

LC-DCP plate hole

- The dynamic compression unit (DCU) hole is symmetrical and provides bidirectional compression
- Allows 40° of longitudinal screw angulation and 7° of transverse screw angulation
- Accepts conventional screws that may be placed in either load or neutral positions, depending on whether interfragment compression is desired (see using the universal drill guide on pages 14 and 15 for more detail)
- Centrally located hole at one end for metaphyseal fracture repair (Figure 1)
- Tapered end for submuscular plate insertion, minimizing tissue trauma

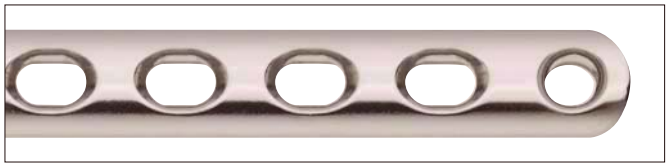


Figure 1

Uniform stiffness

- Allows smooth contouring of the plate to the bone (Figure 2)
- Protects the plate from localized high bending stress, because of the even distribution of stresses over a long distance along the plate

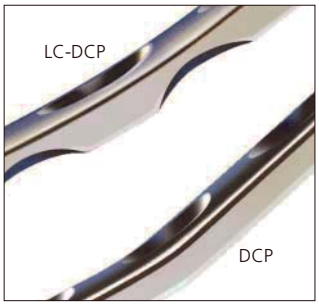


Figure 2

DCP (Dynamic Compression Plate)

DCP plate hole

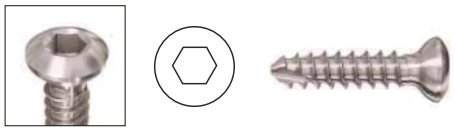
- Incorporates an incline in the hole that converts screw compression into plate translation and compression of the bone fracture
- Accepts conventional screws that may be placed in either load or neutral positions, depending on whether interfragment compression is desired (see using the universal drill guide on pages 14 and 15 for more detail)
- Allows 25° of longitudinal screw angulation and 7° of transverse screw angulation

1. Gasser, R., and S.M. Perren, "Parametric Numerical Design Optimization of Internal Fixation Plates", *7th Meeting of the European Society of Biomechanics*, Denmark. July 8-11, 1990.

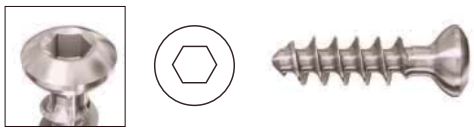
2. Klaue. K. and S.M. Perren. *Unconventional Shapes of the Plate Cross-Section in Internal Fixation: The Trapezoid Plate. Long Term Study of Bone Reaction in Sheep Tibiae.* Davos, Switwzerland: Laboratory for Experimental Surgery, AO ASIF, 1990.

SCREWS

Cortex Screws
- For bicortical fixation in diaphyseal bone
- Self-tapping screws are standard in all sets
- Non-self-tapping screws are also available



Cancellous Bone Screws
- For fixation in poor quality or metaphyseal bone
- Deeper threads and coarser pitch maximizes the surface area of the threads in contact with the bone, thereby increasing the screw's holding power in softer bone



Locking Screws
- Use with the Locking Compression Plate (LCP)
- Conical, double-lead machine thread on the head locks into the threaded Combi hole or stacked Combi hole in the plate
- Create a fixed-angle construct
- Large core diameter provides improved bending and shear strength
- StarDrive recess provides improved torque transmission to the screw, while retaining the screw without the use of a holding sleeve

SCREW REFERENCE CHART

Thread Diameter	**2.7 mm**	**2.7 mm**	**3.5 mm**	**3.5 mm**	**4.0 mm**
Screw Type	**Cortex**	**Locking**	**Cortex**	**Locking**	**Cancellous**
Drill Bit for Threaded Hole	2.0 mm	2.0 mm	2.5 mm	2.8 mm	2.5 mm
Tap	2.7 mm	self-tapping	3.5 mm	self-tapping	4.0 mm
Drive Type	2.5 mm Hexagonal	T8 StarDrive	2.5 mm Hexagonal	T15 StarDrive	2.5 mm Hexagonal

Screw fixation

Bicortical cortex screw fixation is the traditional method of compressing a plate to the bone. Friction between the plate and bone maintains stability. Therefore, bicortical screws require two (2) cortices of fixation to achieve stability (Figure 1).

Locking screws provide stability and load transfer due to the threaded connection between the plate and screw. There is no compression of the plate to the bone (Figure 2).

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

Figure 1

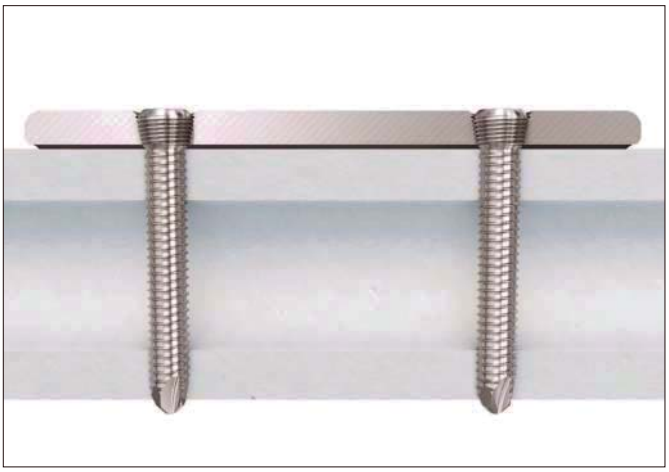


Figure 2

Caution:
DePuy Synthes implants and instruments are manufactured with proprietary processes that produce superior products to those created by conventional manufacturing processes. Though other companies may be able to estimate the DePuy Synthes general product design, DePuy Synthes product dimensions are proprietary. The precision design of DePuy Synthes 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 implants. The metals DePuy Synthes 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 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 can make a genuine claim "the same as DePuy Synthes." Combining implants from other companies with DePuy Synthes implants could reduce product performance. Consequently, it is strongly recommended to not mix parts from different manufacturers.

CONVENTIONAL PLATING USING STANDARD SCREWS

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 contour does not fit the bone (Figure 1). 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 (Figure 2).

Blood supply to the bone
The periosteum is compressed under the plate area, reducing or even interrupting blood supply to the bone (Figure 3). This can delay bone healing due to temporary devascularization underneath the plate.

Poor-quality bone
In poor-quality bone, screws cannot be tightened sufficiently to obtain the compression and friction needed to withstand the loading. This can result in loosening of the screws and loss of stability and reduction.

Standard plating achieves good results in:
- Good-quality bone
- Fractures which are traditionally fixed with lag screws to achieve direct bone healing

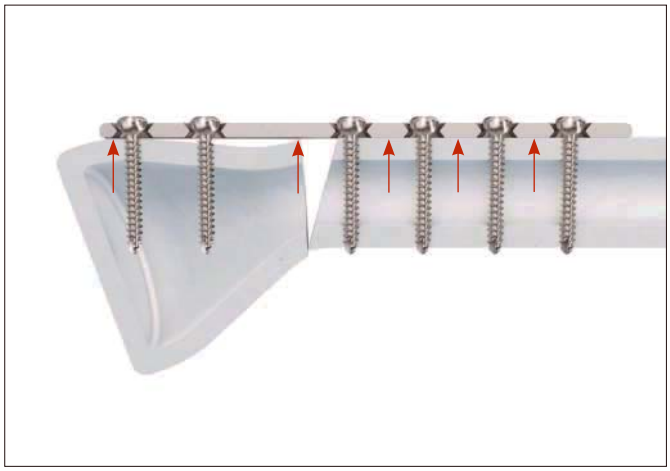


Figure 1

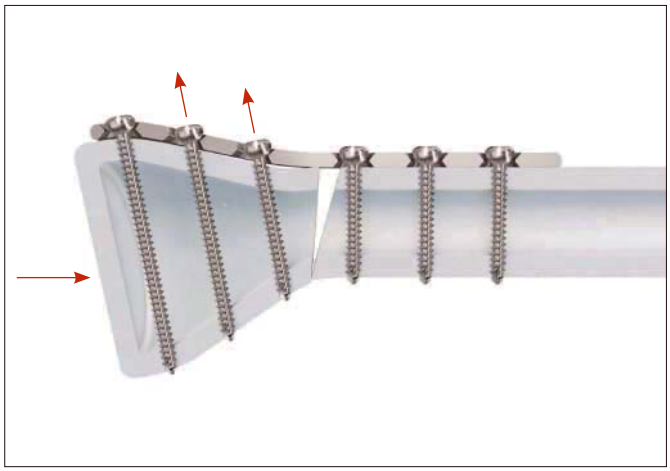


Figure 2

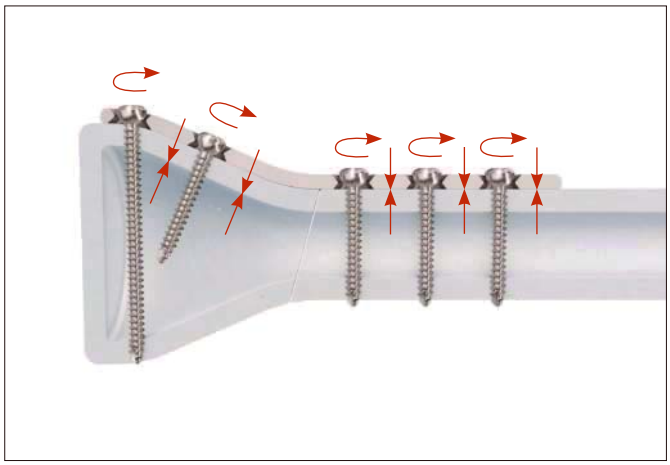


Figure 3

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 (Figure 4). 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 (Figure 5).

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 (Figure 6).

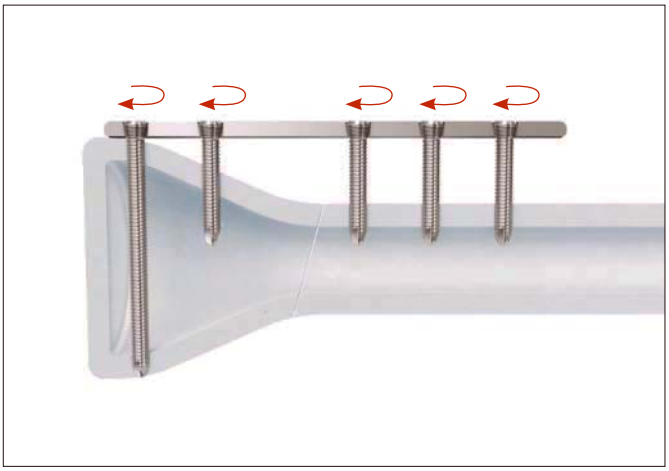


Figure 4

Figure 5

Figure 6

COMBINED INTERNAL FIXATION

The combination of conventional compression plating and locked plating techniques enhances plate osteosynthesis. The result is a combination hole or Combi 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 standard and locking screws is used, the standard screws should be inserted 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.**

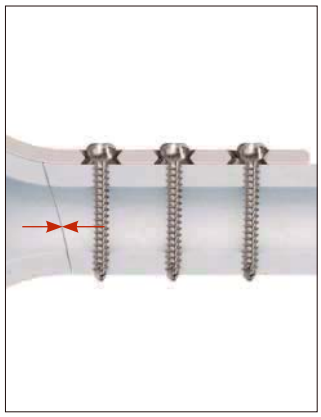
Dynamic compression example

Once the metaphyseal fragment has been fixed with locking screws (A), the fracture can be dynamically compressed using standard screws in the compression side of the Combi hole (B).

Locked and standard plating techniques

- First, use lag screws to anatomically reconstruct the joint surfaces (if applicable)
- 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

A



B

PREPARATION

The following techniques apply to any of the Synthes plate systems: LCP, LC-DCP and DCP. For this example, a 3.5 mm LCP plate was selected since it can accommodate both standard and locking screws.

The surgeon should select the appropriate plate system based on indication and experience.

1
PLATE SELECTION

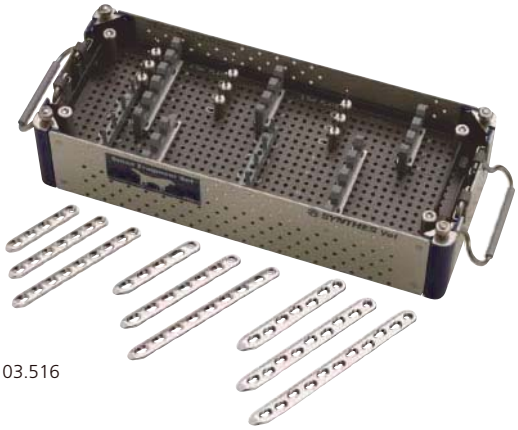
Required sets

103.503	Small Fragment Instrument Set
103.515	Small Fragment Screw Set
103.513	Small Fragment DCP Plate Set
103.514	Small Fragment LC-DCP Plate Set
or	
103.516	Small Fragment LCP Plate Set

The plates are available in various lengths. Complete the preoperative radographic assessment and plan to determine plate length.

103.503

103.515



103.516

2
CONTOURING

Instruments

329.04, 329.05	Bending Irons, for 2.7 mm and 3.5 mm plates (used together)
329.24*	Bending Pliers
329.87*, 329.89*, or 329.820*	Bending Template (7, 9 or 12 holes)

329.04, 329.05

329.24

329.89

Use the bending templates to determine plate contour. Use the bending irons or bending pliers to contour the LCP or the LC-DCP plate to the anatomy.

Note: The LCP 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. Please refer to the *AO Principles of Fracture Management in the Dog and Cat*,[1] *AO Principles of Fracture Management*,[2] and *AO Manual of Fracture Management–Internal Fixators.*[3]

* Also available
1. Johnson.
2. Rüedi.
3. Wagner.

3
REDUCTION AND TEMPORARY PLATE PLACEMENT

Instruments

324.023	Threaded Plate Holder (for LCP only)
324.024	Push-Pull Reduction Device
398.811* or 398.812*	Plate Holding Forceps with Swivel Foot, size 0 or size 1

The plate may be temporarily held in place with standard plate holding forceps or the push-pull reduction device (Figure 1).

A threaded plate holder (Figure 2) can also be used as an aid to position the plate, and is particularly useful with minimally invasive plating technique.

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: Avoid placing the push-pull reduction device in a hole that will be needed immediately for plate fixation. If the same plate hole is to be used later in the procedure for insertion of a bone screw, the following precautions should be observed:
1) The screw should be a bicortical locking screw.
2) A new hole should be drilled through the bone to ensure proper alignment of the locking screw with the plate.

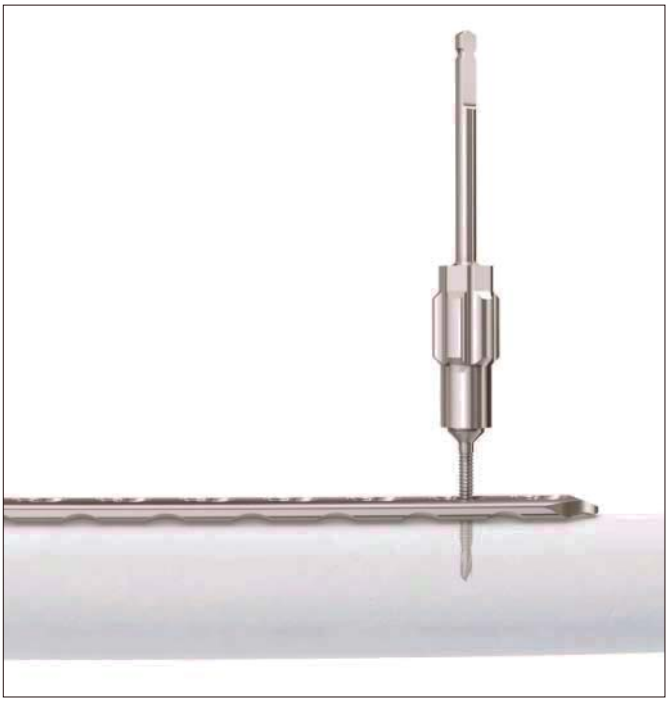


Figure 1

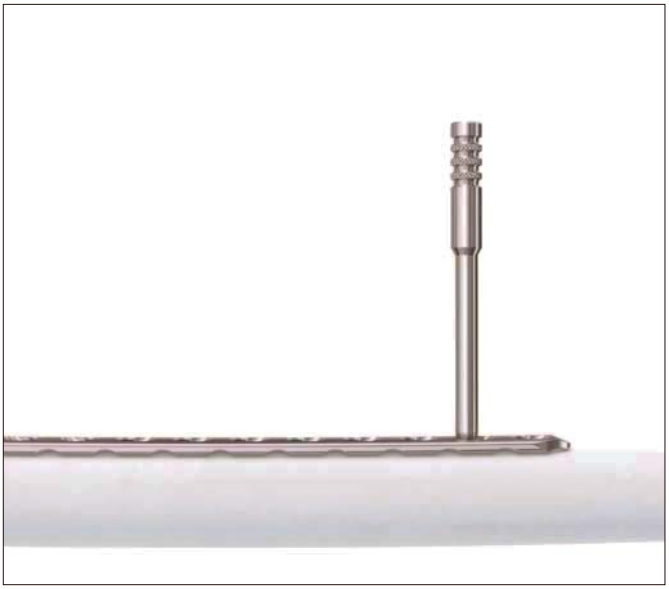


Figure 2

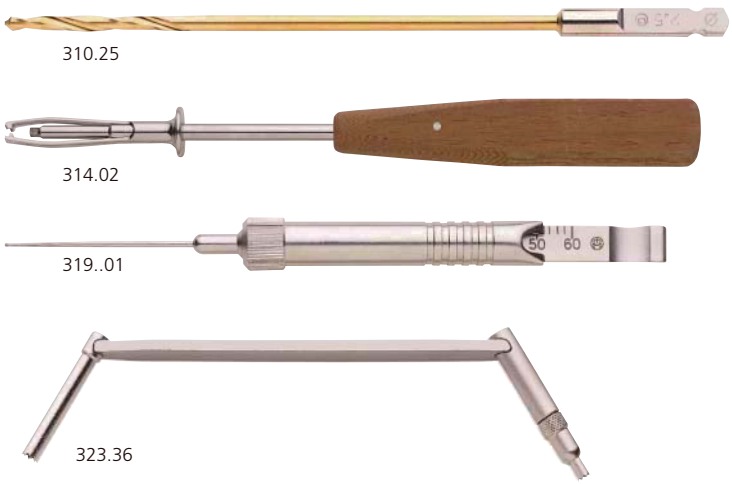
* Also available

4
SCREW INSERTION

Determine whether standard 3.5 mm cortex screws, 4.0 mm cancellous screws or 3.5 mm locking screws will be used for fixation. A combination of all may be used.

Insertion of a cortex or cancellous bone screw

Instruments	
310.25	2.5 mm Drill Bit, quick coupling, 110 mm
314.02	Small Hexagonal Screwdriver with Holding Sleeve
319.01	Depth Gauge (for small screws)
323.36	3.5 mm Universal Drill Guide



Use the 2.5 mm drill bit through the 3.5 mm universal drill guide to predrill the bone.

Measure for screw length using the depth gauge.

Select and insert the appropriate 3.5 mm cortex (or 4.0 mm cancellous) screw using the small hexagonal screwdriver.

Use the 3.5 mm universal drill guide for an eccentric (compression) or neutral insertion of cortex screws.

Note: The 3.5 mm LC-DCP drill guide and the 3.5 mm DCP drill guide are NOT suitable for use with LCP plates.

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

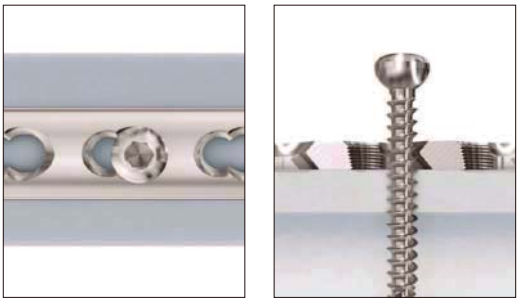
Warning: If a locking screw is used first, care should be taken to ensure that the plate is held securely to the bone to avoid spinning of the plate about the bone.

The universal drill guides are the only drill guides which function in all Synthes plate holes. When a cortex or cancellous bone screw is used, a universal drill guide should be used to guide the drill bit. If the screw is intended to achieve interfragmentary compression, the universal drill guide should be placed in the load position, as shown. If the screw is intended to hold the plate, the universal drill guide should be placed in the neutral position.

Compression (load) position

Compression is achieved by placing the universal drill guide in the eccentric position, and maintaining the drill guide body above the plate as shown (Figure 1).

Figure 1 – Compression (load)



Neutral position

Neutral position is achieved by placing the universal drill guide in the eccentric position, then compressing the drill guide body into the hole, which will shift the drill guide into the neutral position as shown (Figure 2).

Note: For illustrative purposes, a Combi hole has been depicted. The same methodology applies to LC-DCP and DCP holes.

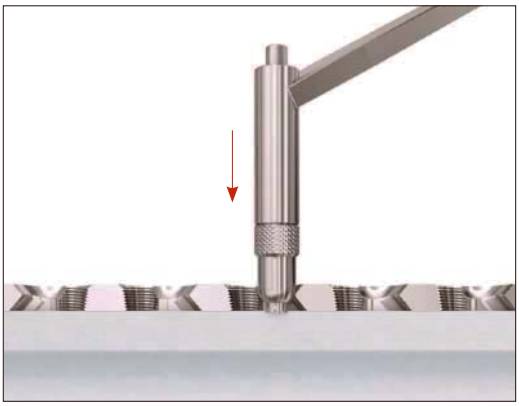
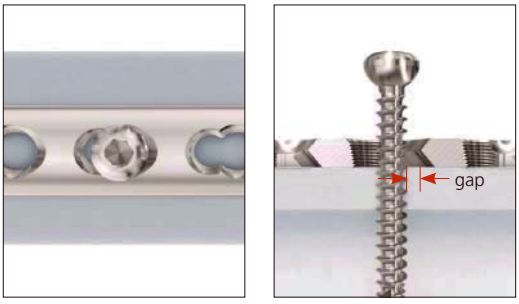


Figure 2–Neutral



Insertion of 3.5 mm locking screws

Instruments	
310.288	2.8 mm Drill Bit
312.648	2.8 mm Threaded Drill Guide
314.115 or 314.116	StarDrive Screwdriver, T15 StarDrive Screwdriver Shaft, T15
319.01	Depth Gauge
511.773*	Torque Limiting Attachment, 1.5 Nm, quick coupling

Note: **A locking screw cannot be used as 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, further anatomical reduction will no longer be possible.**

Screw the 2.8 mm threaded drill guide into an LCP plate hole until fully seated (Figure 3).

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 page 18).**

Warning: **Do not try to bend the plate using the threaded drill guide because damage may occur to the plate hole threads.**

Use the 2.8 mm drill bit to drill to the desired depth (Figure 4).

Remove the threaded drill guide and use the depth gauge to determine screw length (Figure 5).

* Also available

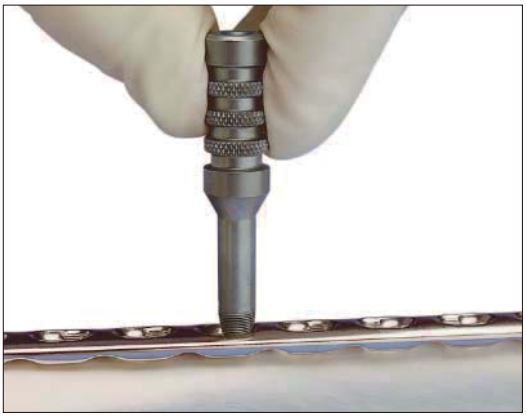


Figure 3

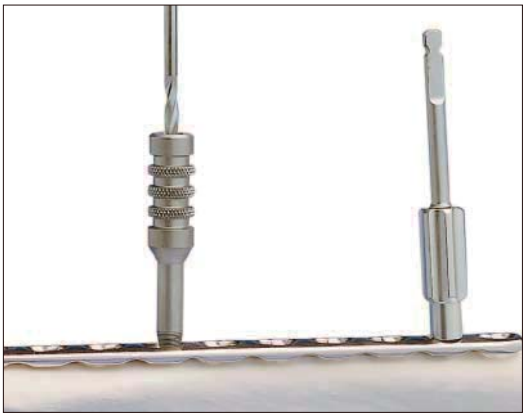


Figure 4

Figure 5

Insert the locking screw under power using the torque limiting attachment and StarDrive screwdriver shaft (Figure 6).

Note: **Recheck each locking screw before closing to verify that the screws are securely locked to the plate. Screwheads must be flush with the plate in the locked position before they can be considered fully seated.**

Warning: **Always use a torque limiting attachment (TLA) when using power to insert locking screws.**

Alternative method of locking screw insertion
Use the StarDrive screwdriver to manually insert the appropriate length locking screw (Figure 7). Carefully tighten the locking screw, as excessive force is not necessary to produce effective screw-to-plate locking.

Figure 6

Figure 7

5
SCREW PLACEMENT VERIFICATION WITH IMAGE INTENSIFICATION

Instruments

VW1605.15	1.6 mm Kirschner Wire with Thread
312.648	2.8 mm Threaded Drill Guide
323.023	1.6 mm Wire Sleeve
323.025*	Direct Measuring Device

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.

With the 2.8 mm threaded drill guide in place, insert the 1.6 mm wire sleeve into the threaded drill guide (Figure 1).

Insert a threaded 1.6 mm Kirschner wire through the wire sleeve and drill to the desired depth (Figure 2).

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

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

*Also available

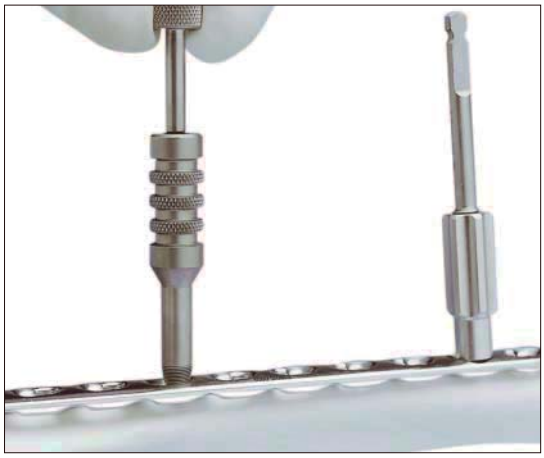


Figure 1

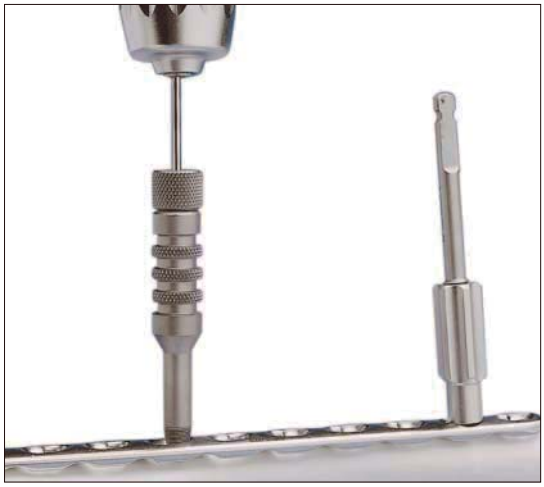


Figure 2

Figure 3

Measurement may be taken by sliding the tapered end of the direct measuring device over the K-wire down to the wire sleeve (Figure 4).

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.

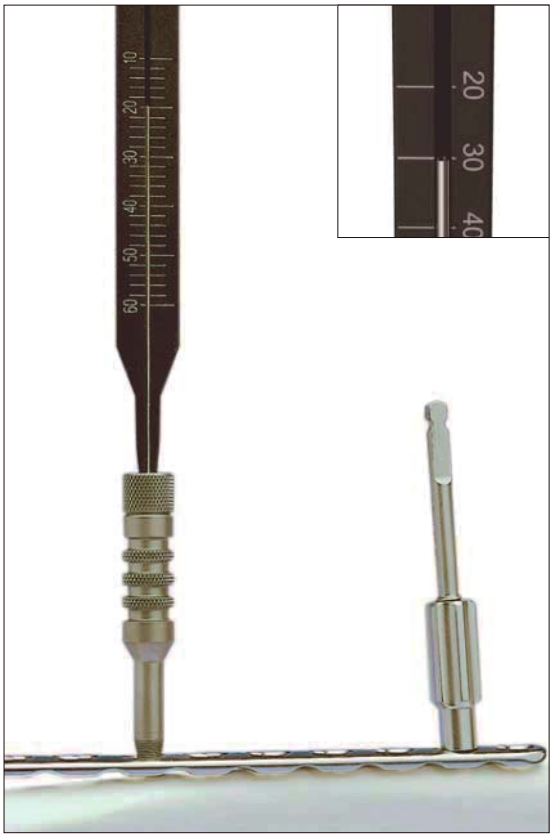
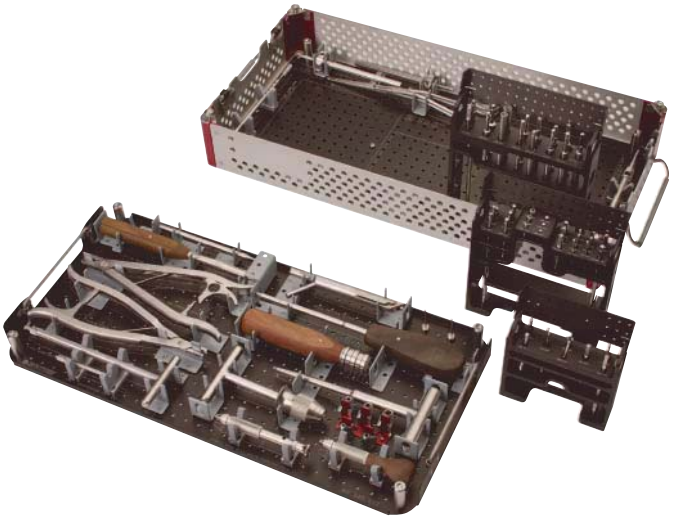


Figure 4

IMPLANT REMOVAL

Set

01.240.001	Screw Removal Set



When removing a screw, first clear the screw drive mechanism (hexagonal or StarDrive) of all tissue ingrowth using a sharp hook and irrigation. This allows complete engagement of the screwdriver and minimizes the chance of stripping the screw drive mechanism. See the Screw Removal Set technique guide for additional instrumentation and technique.

When removing 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.

FEATURED INSTRUMENTS

313.353 2.0 mm Threaded Drill Guide
– For use with 2.7 mm locking screws

The drill guide threads into locking plates for correct alignment of locking screws with plate holes. The drill guide centers a drill bit to ensure perpendicular drilling, and permits proper mating of locking screws to the threaded portion of the Combi hole.

312.648 2.8 mm Threaded Drill Guide
– For use with 3.5 mm locking screws

Notes: **To prevent cross-threading, turn the threaded drill guide counterclockwise until a slight click is noticed, and then turn the drill guide clockwise. If properly aligned, threads should engage within a quarter-turn.**

The threaded drill guide can also be used intraoperatively as a reference for visualizing the angle at which the locking screws engage in the bone.

324.023	Threaded Plate Holder – Facilitates positioning the plate on the bone

324.024	Push-Pull Reduction Device – For use with 3.5 mm LCP plates – Temporarily compresses the plate to the bone – Can assist bone fragment reduction to the plate – Self-drilling, self-tapping 2.8 mm thread – Synthes quick coupling connection

Insert into near cortex only. After power insertion, turn the collet clockwise until it compresses the plate securely to the bone. Take care when inserting this device in a hole that will be needed for plate fixation. After the device is removed, a conventional screw can be placed in the same hole.

Also available

511.773	Torque Limiting Attachment, 1.5 Nm, quick coupling – For use with 3.5 mm locking screws

511.776	Torque Limiting Attachment, 0.8 Nm, quick coupling – For use with 2.7 mm locking screws

A torque limiting attachment (TLA) is used to ensure the minimum amount of torque is applied to minimize the risks of a locking screw backing out of the plate.

398.811 or 398.812	Plate Holding Forceps with Swivel Foot, size 0 or size 1

SMALL FRAGMENT STANDARD INSTRUMENT SET (103.501)

Graphic Case

690.591	Small Fragment Instrument Set Graphic Case

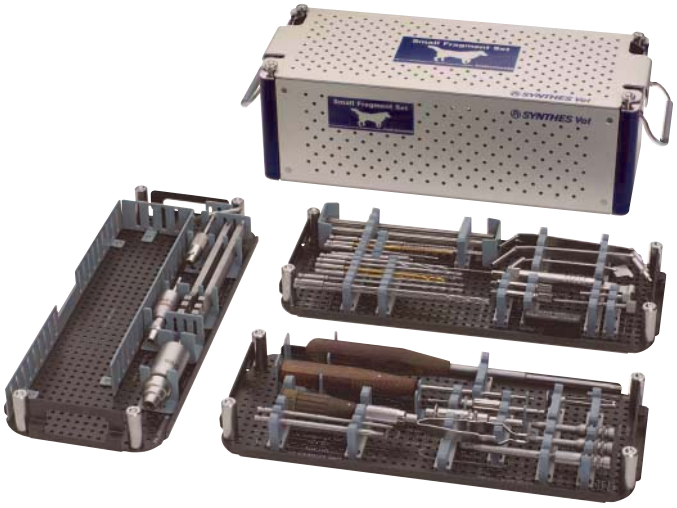
Instruments

310.21	2.0 mm Drill Bit, quick coupling, 125 mm, 2 ea.
310.25	2.5 mm Drill Bit, quick coupling, 110 mm, 2 ea.
310.26	2.7 mm Drill Bit, quick coupling, 100 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
311.26	Tap for 2.7 mm Cortex Screws
311.32	Tap for 3.5 mm Cortex Screws
311.34	Tap for 4.0 mm Cancellous Bone Screws
311.43	Handle, with quick coupling
311.44	T-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
314.02	Small Hexagonal Screwdriver with Holding Sleeve
314.03	Small Hexagonal Screwdriver Shaft
319.01	Depth Gauge, for 2.7 mm and 3.5 mm Cortex, and 4.0 mm Cancellous Bone Screws
319.97	Screw Forceps
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, used with 329.05
329.05	Bending Iron, for 2.7 mm and 3.5 mm plates, used with 329.04
VW1203.15	1.25 mm Kirschner Wire, 150 mm, trocar point (10/pkg.)
VW2003.15	2.0 mm Kirschner Wire, 150 mm, trocar point (10/pkg.)

Also Available

322.21	2.7 mm DCP Drill Guide, neutral and load
322.32	3.5 mm DCP Drill Guide, neutral and load
323.35	3.5 mm LC-DCP Drill Guide, neutral and load

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



Shown with both 103.501 and 103.502 set combined

For detailed cleaning and sterilization instructions, please refer to:
www.synthes.com/cleaning-sterilization
In Canada, the cleaning and sterilization instructions will be provided with the Loaner shipments.

SMALL FRAGMENT STANDARD SCREW SET (103.518)

Screw Rack

690.593 Small Fragment Standard Screw Rack

Lid not shown

Standard Implants

2.7 mm Cortex Screws, self-tapping, 6 ea.

	Length (mm)		Length (mm)
VS205.008	8	VS205.016	16
VS205.010	10	VS205.018	18
VS205.012	12	VS205.020	20
VS205.014	14		

3.5 mm Cortex Screws, self-tapping, 6 ea.

	Length (mm)		Length (mm)
VS302.012	12	VS302.022	22
VS302.014	14	VS302.024	24
VS302.016	16	VS302.026	26
VS302.018	18	VS302.028	28
VS302.020	20	VS302.030	30

4.0 mm Cancellous Bone Screws, fully-threaded
(rack will hold 4 each)

	Length (mm)		Length (mm)
VS403.016	16	VS403.024	24
VS403.018	18	VS403.026	26
VS403.020	20	VS403.028	28
VS403.022	22	VS403.030	30

Note: Small Fragment Screw Set (103.515) consists of Standard Screw Set (103.518) and Locking Screw Set (103.517) stored in the optional Small Fragment Screw Set Graphic Case (690.515).

Also Available

2.7 mm Cortex Screws (rack will hold 6 each)

	Length (mm)		Length (mm)
VS204.006	6	VS204.028	28
VS204.008	8	VS204.030	30
VS204.010	10	VS204.032	32*
VS204.012	12	VS204.034	34*
VS204.014	14	VS204.036	36*
VS204.016	16	VS204.038	38*
VS204.018	18	VS204.040	40*
VS204.020	20	VS204.045	45*
VS204.022	22	VS204.050	50*
VS204.024	24	VS204.055	55*
VS204.026	26		

2.7 mm Cortex Screws, self-tapping (rack will hold 6 each)

	Length (mm)		Length (mm)
VS205.006	6	VS205.038	38*
VS205.022	22	VS205.040	40*
VS205.024	24	VS205.042	42*
VS205.026	26	VS205.044	44*
VS205.028	28	VS205.045	45*
VS205.030	30	VS205.046	46*
VS205.032	32*	VS205.048	48*
VS205.034	34*	VS205.050	50*
VS205.036	36*	VS205.055	55*

3.5 mm Cortex Screws (rack will hold 6 each)

	Length (mm)		Length (mm)
VS301.010	10	VS301.032	32
VS301.012	12	VS301.034	34
VS301.014	14	VS301.036	36
VS301.016	16	VS301.038	38
VS301.018	18	VS301.040	40
VS301.020	20	VS301.045	45
VS301.022	22	VS301.050	50
VS301.024	24	VS301.055	55
VS301.026	26	VS301.060	60
VS301.028	28	VS301.065	65*
VS301.030	30	VS301.070	70*

* Does not fit in screw rack

3.5 mm Cortex Screws, self-tapping (rack will hold 6 each)

	Length (mm)		Length (mm)
VS302.010	10	VS302.045	45
VS302.032	32	VS302.050	50
VS302.034	34	VS302.055	55
VS302.036	36	VS302.060	60
VS302.038	38	VS302.065	65*
VS302.040	40	VS302.070	70*

4.0 mm Cancellous Screws, fully threaded (rack will hold four each 10 mm–40 mm screws, two each 45 mm and 50 mm screws)

	Length (mm)		Length (mm)
VS403.010	10	VS403.045	45
VS403.012	12	VS403.050	50
VS403.014	14	VS403.055	55*
VS403.032	32	VS403.060	60*
VS403.035	35	VS403.065	65*
VS403.036	36	VS403.070	70*
VS403.040	40		

4.0 mm Cancellous Bone Screws, partially threaded, (rack will hold four each 10 mm–40 mm screws, two each 45 mm and 50 mm screws)

	Length (mm)		Length (mm)
VS404.010	10	VS404.030	30
VS404.012	12	VS404.035	35
VS404.014	14	VS404.040	40
VS404.016	16	VS404.045	45
VS404.018	18	VS404.050	50
VS404.020	20	VS404.055*	55
VS404.022	22	VS404.060*	60
VS404.024	24	VS404.065*	65
VS404.026	26	VS404.070*	70
VS404.028	28		

SMALL FRAGMENT DCP PLATE SET (103.513)

Graphic Case

690.511 Small Fragment Plate Set Graphic Case

Lid not shown

Implants

2.7 mm DCP Plates

	Holes	Length (mm)
VP2030.05	5	44
VP2030.07	7	60
VP2030.09	9	76

3.5 mm DCP Plates

	Holes	Length (mm)
VP2040.05	5	61
VP2040.07	7	85
VP2040.09	9	109

3.5 mm Broad DCP Plates

	Holes	Length (mm)
VP2050.07	7	86
VP2050.09	9	110
VP2050.11	11	134

Also Available

2.7 mm DCP Plates

	Holes	Length (mm)
VP2030.02	2	20
VP2030.04	4	36
VP2030.06	6	52
VP2030.08	8	68
VP2030.10	10	84
VP2030.12	12	100

3.5 mm DCP Plates

	Holes	Length (mm)
VP2040.02	2	25
VP2040.04	4	49
VP2040.06	6	73
VP2040.08	8	97
VP2040.10	10	121
VP2040.12	12	145
VP2040.14	14	169
VP2040.16	16	194
VP2040.18	18	217
VP2040.20	20	242
VP2040.22*	22	265

3.5 mm Broad DCP Plates

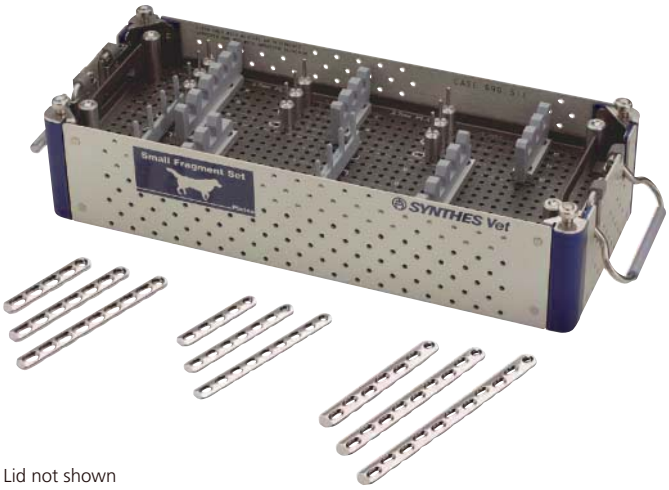
	Holes	Length (mm)
VP2050.08	8	98
VP2050.10	10	122
VP2050.12	12	146
VP2050.13	13	158
VP2050.14	14	170
VP2050.16	16	194
VP2050.18	18	218
VP2050.20	20	242
VP2050.22*	22	266

* Does not fit in case

SMALL FRAGMENT LC-DCP PLATE SET (103.514)

Graphic Case

690.511 Small Fragment Plate Set Graphic Case



Lid not shown

Implants

2.7 mm LC-DCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP3031.05	5	46	VP3031.09	9	82
VP3031.07	7	64			

3.5 mm LC-DCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP3041.05	5	67	VP3041.09	9	119
VP3041.07	7	93			

3.5 mm Broad LC-DCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP3051.07	7	94	VP3051.11	11	146
VP3051.09	9	120			

Also Available

2.7 mm LC-DCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP3031.04	4	37	VP3031.11	11	100
VP3031.06	6	55	VP3031.12	12	109
VP3031.08	8	73	VP3031.14	14	127
VP3031.10	10	91	VP3031.16	16	145

3.5 mm LC-DCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP3041.02	2	28	VP3041.12	12	158
VP3041.03	3	41	VP3041.14	14	184
VP3041.04	4	54	VP3041.15	15	197
VP3041.06	6	80	VP3041.16	16	210
VP3041.08	8	106	VP3041.18	18	236
VP3041.10	10	132	VP3041.20	20	262
VP3041.11	11	145	VP3041.22*	22	288

3.5 mm Broad LC-DCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP3051.08	8	107	VP3051.16	16	211
VP3051.10	10	133	VP3051.17	17	224
VP3051.12	12	159	VP3051.18	18	237
VP3051.13	13	172	VP3051.20	20	263
VP3051.14	14	185	VP3051.22*	22	289
VP3051.15	15	198			

* Does not fit in case

SMALL FRAGMENT LOCKING INSTRUMENT SET (103.502)

Instruments

310.288	2.8 mm Drill Bit, quick coupling, 165 mm, 2 ea.
312.648	2.8 mm Threaded Drill Guide, 2 ea.
313.353	2.0 mm Threaded Drill Guide, 2 ea.
314.115	StarDrive Screwdriver, T15
314.116	StarDrive Screwdriver Shaft, T15, quick coupling, 2 ea.
314.467	StarDrive Screwdriver Shaft, T8, quick coupling, 2 ea.
314.468	Holding Sleeve, for 314.467
323.023	1.6 mm Wire Sleeve
324.023	Threaded Plate Holder
324.024	Push-Pull Reduction Device
VW1605.15	1.6 mm Kirschner Wire with Thread, 150 mm (10/pkg.)

Also Available

	Drill Bits, Jacobs chuck
310.20	2.0 mm, 85 mm
310.24	2.5 mm, 95 mm
310.27	2.7 mm, 85 mm
310.36	3.5 mm, 95 mm
323.025	Direct Measuring Device
	Torque Limiting Attachments, quick coupling
511.773	1.5 Nm
511.776	0.8 Nm
690.591	Small Fragment Instrument Set Graphic Case

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

SMALL FRAGMENT LOCKING SCREW SET (103.517)

Screw Rack

690.592 Small Fragment Locking Screw Rack

Lid not shown

Implants

2.7 mm Locking Screws, self-tapping, 2 ea. (rack will hold 6 each)

	Length (mm)		Length (mm)
VS206.018	18	VS206.024	24
VS206.020	20	VS206.026	26
VS206.022	22	VS206.028	28

3.5 mm Locking Screws, self-tapping (rack will hold 6 each)

	Length (mm)	Qty.		Length (mm)	Qty.
VS303.020	20	1	VS303.034	34	2
VS303.022	22	2	VS303.036	36	2
VS303.024	24	2	VS303.038	38	2
VS303.026	26	2	VS303.040	40	2
VS303.028	28	2	VS303.045	45	2
VS303.030	30	2	VS303.050	50	1
VS303.032	32	2			

Also Available

2.7 mm Locking Screws, self-tapping (rack will hold 6 each)

	Length (mm)		Length (mm)
VS206.010	10	VS206.030	30
VS206.012	12	VS206.032	32
VS206.014	14	VS206.034	34
VS206.016	16		

3.5 mm Locking Screws, self-tapping (rack will hold 6 each)

	Length (mm)		Length (mm)
VS303.010	10	VS303.055	55
VS303.012	12	VS303.060	60
VS303.014	14	VS303.065*	65
VS303.016	16	VS303.070*	70
VS303.018	18		

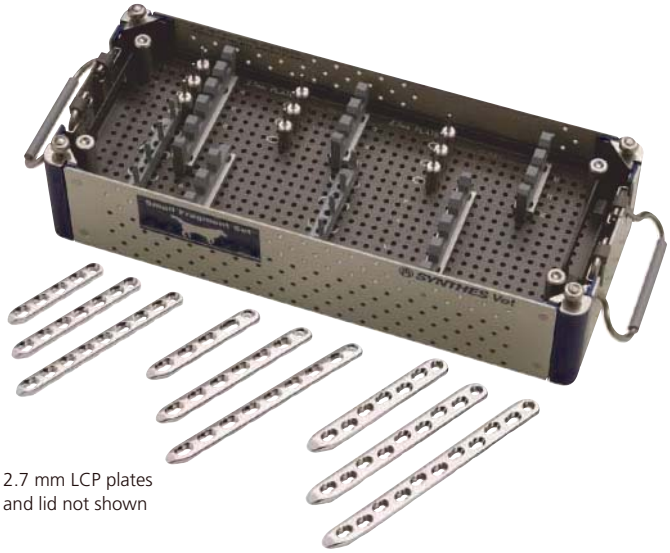
Note: Small Fragment Screw Set (103.515) consists of Standard Screw Set (103.518) and Locking Screw Set (103.517) stored in the optional Small Fragment Screw Set Graphic Case (690.515).

* Does not fit in screw rack

SMALL FRAGMENT LCP PLATE SET (103.516)

Graphic Case

690.511 Small Fragment Plate Set Graphic Case



2.7 mm LCP plates and lid not shown

Implants

2.7 mm LCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP4031.05	5	45	VP4031.09	9	81
VP4031.07	7	63			

3.5 mm LCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP4041.05	5	66	VP4041.09	9	118
VP4041.07	7	92			

3.5 mm Broad LCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP4045.07	7	94	VP4045.11	11	146
VP4045.09	9	120			

Also Available

2.7 mm LCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP4031.04	4	36	VP4031.10	10	90
VP4031.06	6	54	VP4031.12	12	108
VP4031.08	8	72	VP4031.14	14	126
VP4031.09	9	81	VP4031.16	16	144

3.5 mm LCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP4041.02	2	27	VP4041.13	13	170
VP4041.03	3	40	VP4041.14	14	183
VP4041.04	4	53	VP4041.15	15	196
VP4041.06	6	79	VP4041.16	16	209
VP4041.08	8	105	VP4041.18	18	235
VP4041.10	10	131	VP4041.20	20	261
VP4041.11	11	144	VP4041.22*	22	287
VP4041.12	12	157			

3.5 mm Broad LCP Plates

	Holes	Length (mm)		Holes	Length (mm)
VP4045.08	8	107	VP4045.16	16	211
VP4045.10	10	133	VP4045.17	17	224
VP4045.12	12	159	VP4045.18	18	237
VP4045.13	13	172	VP4045.20	20	263
VP4045.14	14	185	VP4045.22*	22	289
VP4045.15	15	198			

* Does not fit in case

QUICK REFERENCE GUIDE—INSTRUMENTS

Part Number	Description	Small Fragment Standard Instrument Set (103.501)	Small Fragment Locking Instrument Set (103.502)	Small Fragment Instrument Set (103.503)
310.21	2.0 mm Drill Bit, quick coupling, 125 mm	•		•
310.25	2.5 mm Drill Bit, quick coupling, 110 mm	•		•
310.26	2.7 mm Drill Bit, quick coupling, 100 mm	•		•
310.35	3.5 mm Drill Bit, quick coupling, 110 mm	•		•
310.89	Countersink (for small screws)	•		•
311.26	Tap for 2.7 mm Cortex Screws	•		•
311.32	Tap for 3.5 mm Cortex Screws	•		•
311.34	Tap for 4.0 mm Cancellous Bone Screws	•		•
311.43	Handle, with quick coupling	•		•
311.44	T-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	•		•
314.02	Small Hexagonal Screwdriver with Holding Sleeve	•		•
314.03	Small Hexagonal Screwdriver Shaft	•		•
319.01	Depth Gauge (for small screws)	•		•
319.97	Screw Forceps	•		•
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, used with 329.05	•		•
329.05	Bending Iron, for 2.7 mm and 3.5 mm plates, used with 329.04	•		•
VW1203.15	1.25 mm Kirschner Wire, 150 mm, trocar point	•		•
VW2003.15	2.0 mm Kirschner Wire, 150 mm, trocar point	•		•
310.288	2.8 mm Drill Bit, quick coupling, 165 mm		•	•
312.648	2.8 mm Threaded Drill Guide		•	•
313.353	Drill Sleeve for 2.0 mm Drill Bit		•	•
314.115	StarDrive Screwdriver, T15		•	•
314.116	StarDrive Screwdriver Shaft, T15, quick coupling		•	•
314.467	StarDrive Screwdriver Shaft, T8, quick coupling		•	•
314.468	Holding Sleeve, for 314.467		•	•
323.023	1.6 mm Wire Sleeve		•	•
324.023	Threaded Plate Holder		•	•
324.024	Push-Pull Reduction Device		•	•
VW1605.15	1.6 mm Kirschner Wire with Thread, 150 mm		•	•

QUICK REFERENCE GUIDE—IMPLANTS

Part Number	Description	Small Fragment Standard Screw Set (103.518)	Small Fragment Locking Screw Set (103.517)	Small Fragment Screw Set (103.515)	Small Fragment DCP Plate Set (103.513)	Small Fragment LC-DCP Plate Set (103.514)	Small Fragment LCP Plate Set (103.516)
VS205.008– VS205.020	2.7 mm Cortex Screws, self-tapping, 8 mm–20 mm	•		•			
VS206.018– VS206.028	2.7 mm Locking Screws, self-tapping, 18 mm–28 mm		•	•			
VS302.012– VS302.030	3.5 mm Cortex Screws, self-tapping, 12 mm–30 mm	•		•			
VS303.020– VS303.050	3.5 mm Locking Screws, 20 mm–50 mm		•	•			
VS403.016– VS403.030	4.0 mm Cancellous Bone Screws, full thread, 16 mm–30 mm	•		•			
VP2030.05	2.7 mm DCP Plate, 5 holes				•		
VP2030.07	2.7 mm DCP Plate, 7 holes				•		
VP2030.09	2.7 mm DCP Plate, 9 holes				•		
VP2040.05	3.5 mm DCP Plate, 5 holes				•		
VP2040.07	3.5 mm DCP Plate, 7 holes				•		
VP2040.09	3.5 mm DCP Plate, 9 holes				•		
VP2050.07	3.5 mm Broad DCP Plate, 7 holes				•		
VP2050.09	3.5 mm Broad DCP Plate, 9 holes				•		
VP2050.11	3.5 mm Broad DCP Plate, 11 holes				•		
VP3031.05	2.7 mm LC-DCP Plate, 5 holes					•	
VP3031.07	2.7 mm LC-DCP Plate, 7 holes					•	
VP3031.09	2.7 mm LC-DCP Plate, 9 holes					•	
VP3041.05	3.5 mm LC-DCP Plate, 5 holes					•	
VP3041.07	3.5 mm LC-DCP Plate, 7 holes					•	
VP3041.09	3.5 mm LC-DCP Plate, 9 holes					•	
VP3051.07	3.5 mm Broad LC-DCP Plate, 7 holes					•	
VP3051.09	3.5 mm Broad LC-DCP Plate, 9 holes					•	
VP3051.11	3.5 mm Broad LC-DCP Plate, 11 holes					•	
VP4031.05	2.7 mm LCP Plate, 5 holes						•
VP4031.07	2.7 mm LCP Plate, 7 holes						•
VP4031.09	2.7 mm LCP Plate, 9 holes						•
VP4041.05	3.5 mm LCP Plate, 5 holes						•
VP4041.07	3.5 mm LCP Plate, 7 holes						•
VP4041.09	3.5 mm LCP Plate, 9 holes						•
VP4045.07	3.5 mm Broad LCP Plate, 7 holes						•
VP4045.09	3.5 mm Broad LCP Plate, 9 holes						•
VP4045.11	3.5 mm Broad LCP Plate, 11 holes						•

Limited Warranty and Disclaimer: DePuy Synthes Vet products are sold with a limited warranty to the original purchaser against defects in workmanship and materials. Any other express or implied warranties, including warranties of merchantability or fitness, are hereby disclaimed.

WARNING: In the USA, this product has labeling limitations. See package insert for complete information.

CAUTION: USA Law restricts these devices to sale by or on the order of a physician.

Not all products are currently available in all markets.

DePuy Synthes
VET

COMPANIES OF Johnson&Johnson

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