Surgical Technique
International Version

smith&nephew

PERI-LOC◇

Upper Extremity
Locked Plating System

Proximal Humerus Locking Plate

PERI-LOC◇ Upper Extremity Locked Plating System

3.5mm & 4.5mm Proximal Humerus Locking Plates

Table of Contents

Nota Bene
The technique description herein is made available to the healthcare professional to illustrate the author's suggested treatment for the uncomplicated procedure. In the final analysis, the preferred treatment is that which addresses the needs of the specific patient.

Introduction

PERI-LOC◇ Locked Plating System Overview

The PERI-LOC Locked Plating System combines the advantages of locked plating with the flexibility and benefits of traditional plates and screws. Utilising both locking and non-locking screws, the PERI-LOC system allows for the creation of a construct that resists angular collapse and also functions as an effective fracture reduction aid. A simple, intuitive instrument set featuring standardised drill bits, screwdrivers, and colour coded drill guides helps make the PERI-LOC system efficient and easy to use.

The precise screw trajectories, anatomic contour, and locking capabilities of the PERI-LOC Distal Humerus Plates provide a stable construct for predictable reconstruction of complex fractures of the humerus.

- Left and right specific plates available in a variety of lengths for precise implant contour
- Curved plate design avoids excessive stripping of the deltoid muscle and neuro-vascular damage while maximising shaft coverage
- Low profile plate and screws reduce the potential for soft tissue and tendon irritation
- 3.5mm and 4.5mm versions available when surgically indicated
- 316L stainless steel for strength
- Bevelled plate tip for percutaneous insertion
- Locking and non-locking option in every hole for custom screw configurations
- Divergent proximal screw trajectories for optimal articular reconstruction
- Suture holes in plate head to facilitate rotator cuff repair
- Limited contact shaft portion to reduce periosteal damage
- Elongated holes in the plate shaft facilitate plate translation

Implant Features

3.5mm Proximal Humerus Plate

Suture holes for rotator cuff repair

Curved Plate design avoids excessive stripping of the deltoid muscle

Oblong shaft hole allows for translation of the plate

Bevelled tip allows easy percutaneous insertion of plate

Holes in the plate can be used for 1mm of compression or locking

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Every threaded hole can accept a locking or non-locking screw:

3.5mm Self-Tapping Cortex Screw (Non-Locking)
Cat. No. 7180-40XX

3.5mm Locking Self-Tapping Cortex Screw
Cat. No. 7180-50XX

Implant Features

4.5mm Proximal Humerus Plate

Every threaded hole can accept a locking or non-locking screw:

4.5mm Self-Tapping Cortex Screw
Cat. No. 7180-60XX

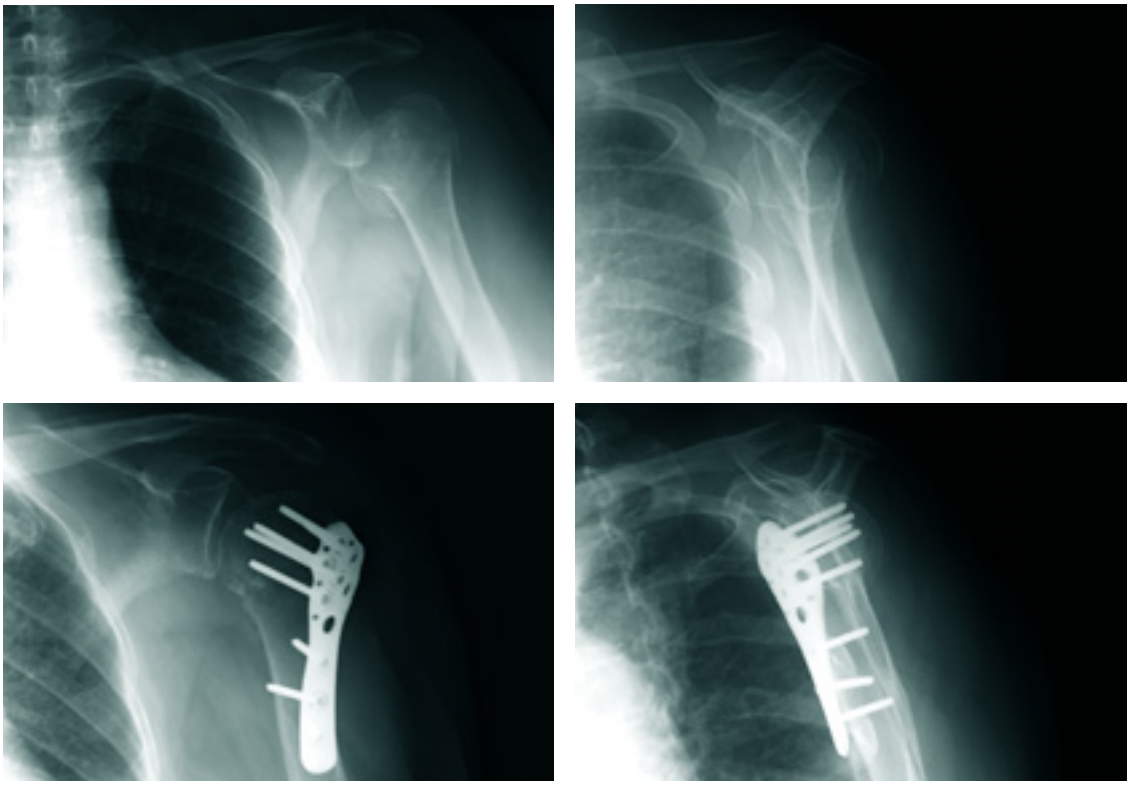
4.5mm Locking Self-Tapping Cortex Screw
Cat. No. 7180-70XX

Indications

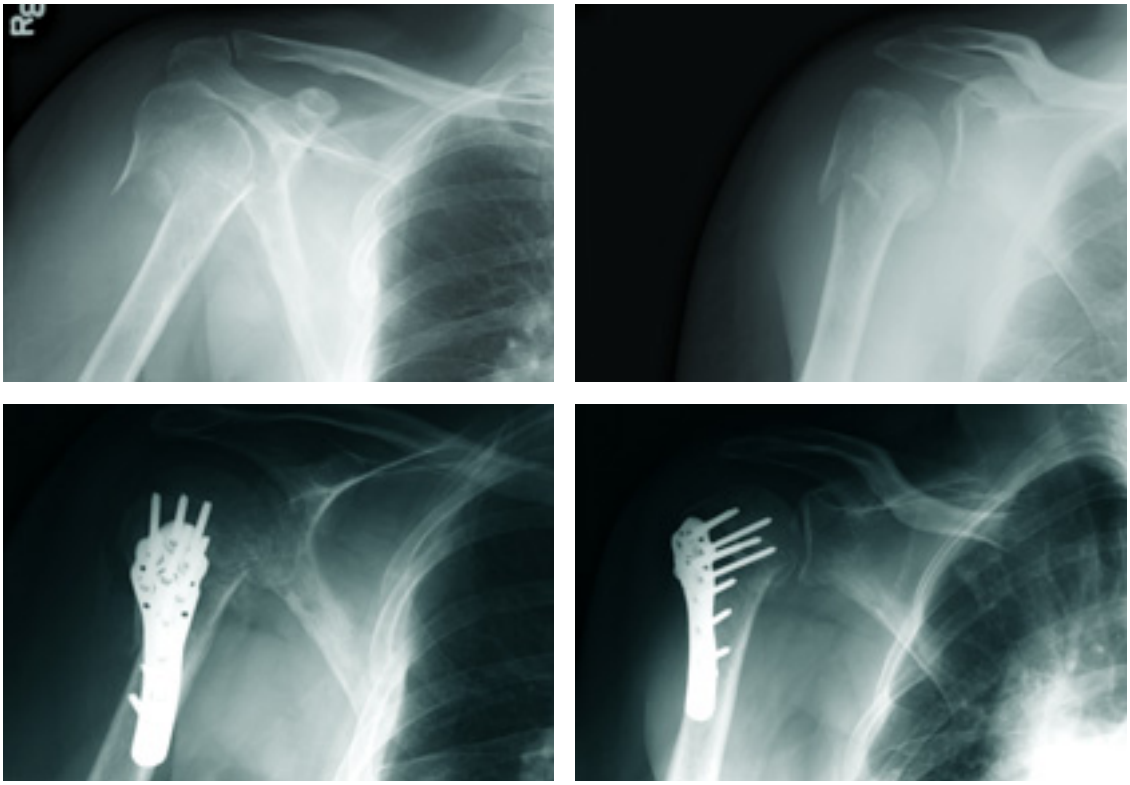
The PERI-LOC® 3.5mm and 4.5mm Proximal Humerus Plates are indicated for fixation of fractures, non-unions, and osteotomies of the humerus.

Proximal Humerus Case Examples

Case 1



Case 2

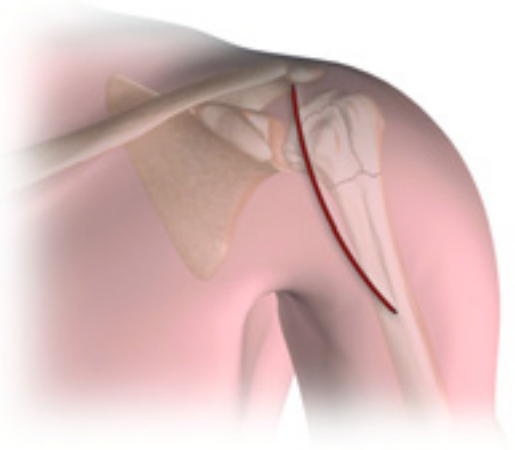


Surgical Technique

Patient Positioning

The patient may be placed in either a beach-chair or supine position with the affected limb positioned to permit visualisation of the shoulder joint with fluoroscopy. Take preliminary images before the patient is prepped and draped to confirm adequate visualization and reduction capabilities.

Incision



The incision is made for the standard deltopectoral approach beginning midway between the coracoid and clavicle and extending distally in an oblique manner to the deltoid insertion. The skin and subcutaneous tissues are divided, and the cephalic vein is identified. The cephalic vein marks the location of the deltopectoral interval. The deltopectoral interval is deepened bluntly to the clavipectoral fascia. The clavipectoral fascia is divided to expose the greater and lesser tuberosities and the bicipital groove. Dissection is extended distally down the shaft of the humerus lateral to the pectoralis insertion and medial to the deltoid insertion.

Tip:
Due to the curved contour of the PERI-LOC◇ Proximal Humeral Plate, division of the deltoid insertion is not always required. When distal exposure is needed, the anterior one third of the deltoid insertion may be released from the lateral humerus.

Fracture Reduction and Provisional Fixation

After exposure and debridement of the fracture site, the fracture is reduced and provisionally fixed under fluoroscopy with K-wires, reduction forceps or suture fixation. Reduction aids should be placed so as not to interfere with placement of the plate.

Surgical neck fracture reduction may be accomplished using an anatomically contoured PERI-LOC® Proximal Humerus Plate itself as a reduction tool.

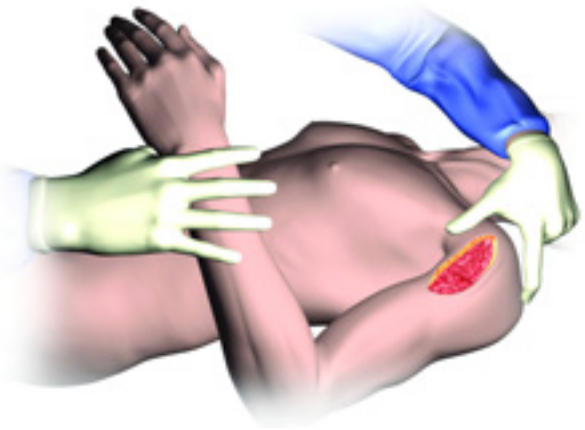


Plate Selection

The appropriate plate is selected following fracture reduction. The decision to use either a 3.5mm or 4.5mm plate is determined by the fracture pattern and by the way in which the plate conforms to the bone. A minimum of three screw holes for the distal aspect of the fracture is recommended when selecting plate length for neck fractures and a minimum of four when treating non-unions or fractures that extend in to the shaft.

Plate Positioning

Position the plate postero-lateral to the bicipital groove over the anterior portion of the greater tuberosity. It should sit approximately 1cm distal to the rotator attachment on the upper aspect of the greater tuberosity. Avoid placing the plate too superior on the tuberosity as this increases the risk of subacromial impingement.

To check plate placement, thread the 2.0mm Locking Drill Guide into the most proximal plate hole and insert a 2.0mm K-wire under fluoroscopy. Stop the K-wire before it reaches the subchondral bone. This K-wire shows the position of the most proximal screw in the plate head. All other screws will be below this one.

2.0mm K-wire
Locking Guide
– One Piece
Cat. No. 7117-3491

2.0 x 150mm K-wire
Cat. No. 7116-1020

Screw Insertion

Fracture pattern and/or patient anatomy will determine the order of screw insertion. The PERI-LOC° Proximal Humerus Plate may be implanted using either a “Shaft-first” or “Proximal-first” fixation method.

Option #1: the Shaft-first technique allows for reduction and fixation of the shaft first followed by its fixation and attachment to the proximal fragment or fragments. A 3.5mm non-locking screw or 2.7mm Provisional Fixation Pin inserted into the oblong hole in the plate shaft helps to facilitate plate translation and optimal placement.

Option #2: the Proximal-first technique allows for reduction and fixation of the proximal fragments first followed by their attachment to the shaft. Once proximal fixation has been achieved, insertion of a 2.7mm Provisional Fixation Pin into the oblong shaft hole allows for adjustment and final confirmation of plate position prior to definitive fixation.

After selecting the desired order for screw insertion, proceed with definitive fixation of the fracture using appropriate screw selections.

Tips:

- If non-locking screws are to be inserted into a plate to gain compression, it is preferable that they be inserted prior to any locking screws.
- If either the 3.5mm Locking Screw Guide with 2.7mm Locking Drill Guide Insert or 2.7mm Locking Screw Guide with 2.0mm Locking Drill Guide Insert are used, remove the Drill Guide Insert before inserting the appropriate length screw through the slotted Outer Sleeve. *Note that the entire Drill Guide assembly must be removed before inserting a screw less than 24mm in length.* Advance the screw with the appropriate Hexdriver until the black laser etched marks are at the top of the Outer Sleeve then remove the Outer Sleeve and tighten by hand.
- For a pre-determined screw trajectory when inserting Cortex Screws, either the 3.5mm Locking Drill Guide with 2.7mm Insert or 2.7mm Locking Drill Guide with 2.0mm Insert may be used in place of the standard Drill Guide.
- The 3.5mm Locking Drill Guide-One Piece and 2.7mm Locking Drill Guide-One Piece may be substituted for the Locking Drill Guides with Inserts.
- Locking screws may be inserted on power, but should always be tightened by hand. Tightening screws on power may cause loss of reduction, exposure of the screw head to excessive torque or damage to the drill.
- When drilling for screws in the humeral head, stop the Drill Bit before reaching the subchondral bone. It is recommended to use image intensification as it may not be possible to feel subchondral resistance during drilling.

3.5mm Cortex Screw Technique

- Drill with the Long 2.7mm Drill Bit through the Drill Guide with 2.7mm Neutral Locking Hole Insert.

Screw length may be determined by reading the calibrations on the Drill Bit or by using the 3.5mm Depth Gauge.

Insert the appropriate length screw with the 3.5mm Hexdriver.

2.7mm Drill Bit with Quick Connect
Cat. No. 7117-3503

2.7mm Neutral Locking Hole Insert
Cat. No. 7117-3514

Universal Drill Guide Handle
Cat. No. 7117-3349

Short 3.5mm Screw Depth Gauge
Cat. No. 7117-3523

3.5mm Hexdriver Shaft with AO Quick Connect
Cat. No. 7117-3537

3.5mm Locking Screw Technique

- Thread the 3.5mm Locking Screw Guide with Insert into the screw hole. Drill with the Long 2.7mm Drill Bit and measure for screw length by reading the calibrations on the Drill Bit or by using the 3.5mm Depth Gauge.

If using Depth Gauge, remove the Locking Drill Guide for accurate measurement.

Insert the appropriate length screw using the 3.5mm Hexdriver.

3.5mm Locking Screw Guide
Cat. No. 7117-3538

2.7mm Locking Drill Guide Insert
Cat. No. 7117-3529

2.7mm Drill Bit with Quick Connect
Cat. No. 7117-3503

4.5mm Locking and Non-locking Screw Technique

For insertion of 4.5mm self-tapping cortex screws and locking screws use the large fragment instruments and the techniques description below.

4.5mm Cortex Screw Technique

- Drill with the Long 3.5mm Drill Bit through the Drill Guide with 3.5mm Neutral Locking Hole Insert. Screw length may be determined by reading the calibrations on the Drill Bit or by using the 4.5mm Depth Gauge. If using the Depth Gauge, remove the Locking Drill Guide for accurate measurement. Insert the appropriate length screw with the 3.5mm Hexdriver.

4.5mm Locking Screw Technique

- Thread the 4.5mm Locking Screw Guide with Insert into the locking hole. Drill with the Long 3.5mm Drill Bit and measure for screw length by reading the calibrations on the Drill Bit or by using the 4.5mm Depth Gauge. If using Depth Gauge, remove the Locking Drill Guide for accurate measurement. Insert the appropriate length screw using the 3.5mm Hexdriver.

Incision Closure

Verify fracture reduction under fluoroscopy and use the appropriate method for surgical closure of the incision.

Catalogue Information – Small Fragment Plates

Small Fragment 3.5mm Proximal Humerus

Cat. No.	Length	Minimum Suggested Qty
7180-1303	3H Right 89mm	0
7180-1305	5H Right 115mm	1
7180-1307	7H Right 140mm	0
7180-1309	9H Right 165mm	1
7180-1311	11H Right 191mm	0
7180-1313	13H Right 216mm	1
7180-1403	3H Left 89mm	0
7180-1405	5H Left 115mm	1
7180-1407	7H Left 140mm	0
7180-1409	9H Left 165mm	1
7180-1411	11H Left 191mm	0
7180-1413	13H Left 216mm	1

Large Fragment 4.5mm Proximal Humerus

Cat. No.	Length	Minimum Suggested Qty
7180-1503*	3H Right 93mm	0
7180-1505*	5H Right 119mm	0
7180-1507*	7H Right 144mm	0
7180-1509*	9H Right 169mm	0
7180-1511*	11H Right 195mm	0
7180-1513*	13H Right 220mm	0
7180-1515*	15H Right 246mm	0
7180-1603*	3H Left 93mm	0
7180-1605*	5H Left 119mm	0
7180-1607*	7H Left 144mm	0
7180-1609*	9H Left 169mm	0
7180-1611*	11H Left 195mm	0
7180-1613*	13H Left 220mm	0
7180-1615*	15H Left 246mm	0

*Sterile Only

Small Outer Case – 2.4”

Cat. No. 7112-9401

Lid for Outer Cases

Cat. No. 7112-9402

Catalogue Information – Small Fragment System Screws

Small Fragment System
3.5mm Self-Tapping Cortex Screws
(Non-Locking)

Cat. No.	Length	Minimum Suggested Qty
7180-4010	10mm	5
7180-4012	12mm	5
7180-4014	14mm	5
7180-4016	16mm	10
7180-4018	18mm	10
7180-4020	20mm	5
7180-4022	22mm	5
7180-4024	24mm	5
7180-4026	26mm	5
7180-4028	28mm	5
7180-4030	30mm	5
7180-4032	32mm	5
7180-4034	34mm	5
7180-4036	36mm	5
7180-4038	38mm	5
7180-4040	40mm	5
7180-4045	45mm	5
7180-4050	50mm	5
7180-4055	55mm	5
7180-4060	60mm	5
7180-4065	65mm	5
7180-4070	70mm	5
7180-4075	75mm	5
7180-4080	80mm	5
7180-4085	85mm	0
7180-4090	90mm	0
7180-4095	95mm	0
7180-4100	100mm	0
7180-4105	105mm	0
7180-4110	110mm	0

Small Fragment System
3.5mm Locking Self-Tapping Cortex Screws

Cat. No.	Length	Minimum Suggested Qty
7180-5010	10mm	5
7180-5012	12mm	5
7180-5014	14mm	5
7180-5016	16mm	10
7180-5018	18mm	10
7180-5020	20mm	5
7180-5022	22mm	5
7180-5024	24mm	5
7180-5026	26mm	5
7180-5028	28mm	5
7180-5030	30mm	5
7180-5032	32mm	5
7180-5034	34mm	5
7180-5036	36mm	5
7180-5038	38mm	5
7180-5040	40mm	5
7180-5045	45mm	5
7180-5050	50mm	5
7180-5055	55mm	5
7180-5060	60mm	5
7180-5065	65mm	5
7180-5070	70mm	5
7180-5075	75mm	5
7180-5080	80mm	5
7180-5085	85mm	0
7180-5090	90mm	0
7180-5095	95mm	0
7180-5100	100mm	0
7180-5105	105mm	0
7180-5110	110mm	0

Catalogue Information – Large Fragment System Screws

Large Fragment System – 4.5mm Self-Tapping Cortex Screws (Non-Locking)

Cat. No.	Length	Minimum Suggested Qty
7180-6014	14mm	4
7180-6016	16mm	4
7180-6018	18mm	4
7180-6020	20mm	6
7180-6022	22mm	6
7180-6024	24mm	6
7180-6026	26mm	6
7180-6028	28mm	6
7180-6030	30mm	10
7180-6032	32mm	10
7180-6034	34mm	10
7180-6036	36mm	10
7180-6038	38mm	10
7180-6040	40mm	10
7180-6042	42mm	6
7180-6044	44mm	4
7180-6046	46mm	4
7180-6048	48mm	4
7180-6050	50mm	4
7180-6052	52mm	4
7180-6054	54mm	4
7180-6056	56mm	4
7180-6058	58mm	4
7180-6060	60mm	4
7180-6062	62mm	4
7180-6064	64mm	4
7180-6066	66mm	4
7180-6068	68mm	4
7180-6070	70mm	4
7180-6072	72mm	4
7180-6074	74mm	4
7180-6076	76mm	4
7180-6078	78mm	4
7180-6080	80mm	4
7180-6085	85mm	4
7180-6090	90mm	2
7180-6095	95mm	2
7180-6100	100mm	2
7180-6105	105mm	0
7180-6110	110mm	0
7180-6115	115mm	0
7180-6120	120mm	0
7180-6125	125mm	0
7180-6130	130mm	0

Large Fragment System
4.5mm Locking Self-Tapping Cortex Screws

Cat. No.	Length	Minimum Suggested Qty
7180-7010	10mm (Blunt Tip)	4
7180-7012	12mm (Blunt Tip)	4
7180-7014	14mm	4
7180-7016	16mm	4
7180-7018	18mm	4
7180-7020	20mm	6
7180-7022	22mm	6
7180-7024	24mm	6
7180-7026	26mm	6
7180-7028	28mm	6
7180-7030	30mm	10
7180-7032	32mm	10
7180-7034	34mm	10
7180-7036	36mm	10
7180-7038	38mm	10
7180-7040	40mm	10
7180-7042	42mm	6
7180-7044	44mm	4
7180-7046	46mm	4
7180-7048	48mm	4
7180-7050	50mm	4
7180-7052	52mm	4
7180-7054	54mm	4
7180-7056	56mm	4
7180-7058	58mm	4
7180-7060	60mm	4
7180-7062	62mm	4
7180-7064	64mm	4
7180-7066	66mm	4
7180-7068	68mm	4
7180-7070	70mm	4
7180-7072	72mm	4
7180-7074	74mm	4
7180-7076	76mm	4
7180-7078	78mm	4
7180-7080	80mm	4
7180-7085	85mm	4
7180-7090	90mm	2
7180-7095	95mm	2
7180-7100	100mm	2
7180-7105	105mm	0
7180-7110	110mm	0
7180-7115	115mm	0
7180-7120	120mm	0
7180-7125	125mm	0
7180-7130	130mm	0

Catalogue Information – Small Fragment System Instruments

Sharp Hook
Cat. No. 7117-0043

Hohmann Retractor, 8mm Width
Cat. No. 7117-0057

Hohmann Retractor, 15mm Width
Cat. No. 7117-0095

Hohmann Retractor Bent, 8mm
Cat. No. 7117-3369

Wire Bending Pliers, 140mm Length
Cat. No. 7117-0063

Bending Pliers for 2.7mm
& 3.5mm Plates
Cat. No. 7117-0076

Bending Pliers for 3.5mm
Reconstruction Plates
Cat. No. 7117-0175

Periosteal Elevator 6mm, Rounded
Cat. No. 7117-0097

Universal Plate Bending Irons
Cat. No. 7117-3367

Small Fragment Countersink
Cat. No. 7117-3344

Reduction Forceps with Ratchet – Bowed, 205mm
Cat. No. 7117-3370

Reduction Forceps with Points, Broad
Cat. No. 7117-3377

Reduction Forceps with Serrated Jaw
Cat. No. 7117-3378

3.5mm Locking Screw Guide
Cat. No. 7117-3538

2.7mm Locking Drill Guide Insert
Cat. No. 7117-3529

2.7mm Locking Drill Guide – One Piece
(Optional)
Cat. No. 7117-3450

2.0mm K-wire Locking Guide – One Piece
Cat. No. 7117-3491

Universal Drill Guide Handle
Cat. No. 7117-3349

2.0mm Wire/Drill Insert
Cat. No. 7117-3517

2.7mm Drill Guide Insert
Cat. No. 7117-3510

3.5mm Drill Guide Insert
Cat. No. 7117-3513

2.7mm Neutral Locking Hole Insert
Cat. No. 7117-3514

2.7mm Compression Locking Hole Insert
Cat. No. 7117-3515

2.7mm Neutral Slot Insert
Cat. No. 7117-3512

2.7mm Compression Slot Insert
Cat. No. 7117-3511

2.0mm Parallel Wire/Drill Guide
Cat. No. 7117-3516

Short 3.5mm Screw Depth Gauge
Cat. No. 7117-3523

2.7mm Screw Depth Gauge
Cat. No. 7117-3525

3.5mm Screw Depth Gauge
Cat. No. 7117-3534

Cannulated Bending Irons for K-wires
Cat. No. 7117-3527

Cannulated AO to Trinkle Adaptor
Cat. No. 7117-3528

Small T-Handle, Quick Coupling
Cat. No. 7117-3542

Tear Drop Handle Screwdriver with Quick Connect
Cat. No. 7117-3543

Large Screwdriver Handle
Cat. No. 7117-3547

Self Centering Reverse Verbrugge, 190mm
Cat. No. 7117-3544

2.5mm Hexdriver Shaft with AO Quick Connect
Cat. No. 7117-3535

3.5mm Hexdriver Shaft with AO Quick Connect
Cat. No. 7117-3537

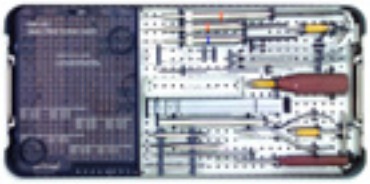
Small Fragment Guide Removal Assembly
Cat. No. 7117-3549

Catalogue Information – Small Fragment System Trays

Large Outer Case – 4.8”
Cat. No. 7112-9400

Lid for Outer Cases
Cat. No. 7112-9402

PERI-LOC◇ Small Fragment Instrument Tray
Cat. No. 7652-2300



Catalogue Information – Small Fragment System Disposables

K-Wires with Trocar Point and Threaded Pins

Cat. No.	Description	Qty
7116-1012	1.25mm x 150mm	6
7116-1016	1.6mm x 150mm	6
7116-1020	2.0mm x 150mm	6

Taps with Quick Connect

Cat. No.	Description	Qty
7117-3318	3.5mm	2
7117-3366	2.7mm	2
7117-3386	4.0mm Cancellous	2

Provisional Fixation Pins

Cat. No.	Description	Qty
7117-3322	2.7mm x 18mm	4
7117-3323	2.7mm x 40mm	4

Drill Bits with Quick Connect

Cat. No.	Description	Qty
7117-3501	2.0mm	2
7117-3502	2.7mm Short	2
7117-3503	2.7mm	2
7117-3504	3.5mm Short	2

Catalogue Information – Large Fragment System Instruments

Sharp Hook
Cat. No. 7117-0043

Wire Bending Pliers, 140mm Length
Cat. No. 7117-0063

Large Fragment Screw Depth Gauge
Cat. No. 7117-3331

5.7mm Cannulated Depth Gauge
Cat. No. 7117-3526

Universal Plate Bending Irons
Cat. No. 7117-3367

Hohmann Retractor Long, 15mm Width
Cat. No. 7117-3393

Universal Drill Guide Handle
Cat. No. 7117-3349

2.0mm Wire/Drill Insert
Cat. No. 7117-3517

3.5mm Drill Guide Insert
Cat. No. 7117-3513

2.0mm Parallel Wire/Drill Guide
Cat. No. 7117-3516

4.5mm Drill Guide Insert
Cat. No. 7117-3520

3.5mm Neutral Locking Hole Insert
Cat. No. 7117-3521

3.5mm Compression Locking Hole Insert
Cat. No. 7117-3522

3.5mm Neutral Slot Insert
Cat. No. 7117-3519

3.5mm Compression Slot Insert
Cat. No. 7117-3518

4.7mm Hexdriver
Cat. No. 7117-3540

Cannulated Bending Irons for K-wires
Cat. No. 7117-3527

Cannulated AO to Trinkle Adaptor
Cat. No. 7117-3528

4.5/5.7mm Locking Screw Guide
Cat. No. 7117-3539

2.0mm K-Wire Locking Guide Insert
Cat. No. 7117-3531

3.5mm Locking Drill Guide Insert
Cat. No. 7117-3530

4.5mm Locking Drill Guide Insert
Cat. No. 7117-3532

3.5mm Locking Drill Guide – One Piece
(Optional)
Cat. No. 7117-3541

4.5mm Locking Drill Guide – One Piece
(Optional)
Cat. No. 7117-3541

Large Fragment Guide Removal Assembly
Cat. No. 7117-3550

Large Screwdriver Handle
Cat. No. 7117-3547

Tear Drop Handle Screwdriver with Quick Connect
Cat. No. 7117-3543

Small T-Handle, Quick Coupling
Cat. No. 7117-3542

3.5mm Hexdriver Shaft with AO Quick Connect
Cat. No. 7117-3537

3.5mm Cannulated Hexdriver Shaft
Cat. No. 7117-3536

Catalogue Information – Large Fragment System Forceps Tray Instruments

Self Centering Reverse Verbrugge

Cat. No.	Description
7117-3544	190mm
7117-3545	240mm
7117-3546	280mm

Reduction Forceps with Ratchet, 205mm
Cat. No. 7117-0044

Reduction Forceps with Speed Knob, 240mm
Cat. No. 7117-0050

Socket Wrench with Universal Joint
Cat. No. 7117-0143

Articulated Tension Device with Gauge
Cat. No. 7117-0145

Lamina Spreader
Cat. No. 7117-3365

Reduction Forceps with Ratchet – Bowed, 205mm
Cat. No. 7117-3370

Reduction Forceps with Rachet, 240mm
Cat. No. 7117-3371

Reduction Forceps with Points, Broad
Cat. No. 7117-3377

Reduction Forceps with Serrated Jaw
Cat. No. 7117-3378

Catalogue Information – Large Fragment System Trays

PERI-LOC® Large Fragment Instrument Tray
Cat. No. 7117-0327

Small Outer Case – 2.4”
Cat. No. 7112-9401

Lid for Outer Cases
Cat. No. 7112-9402

PERI-LOC Forceps Tray
Cat. No. 7117-0326

Catalogue Information – Large Fragment System Disposables

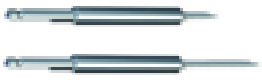
K-Wires with Trocar Point and Threaded Pins

Cat. No.	Description	Qty
7116-1020	2.0mm x 150mm	6
7117-3361	2.0mm x 228mm	6

Taps with Quick Connect

Cat. No.	Description	Qty
7117-3319	4.5mm	2
7117-3509	6.5mm Cancellous	2

Provisional Fixation Pins



Cat. No.	Description	Qty
7117-3324	3.5mm x 18mm	4
7117-3325	3.5mm x 40mm	4

Drill Bits with Quick Connect

Cat. No.	Description	Qty
7117-3504	3.5mm Short	2
7117-3505	3.5mm	2
7117-3506	4.5mm	2
7117-3507	4.5mm Short	2
7117-3508	4.5mm Cannulated	2

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