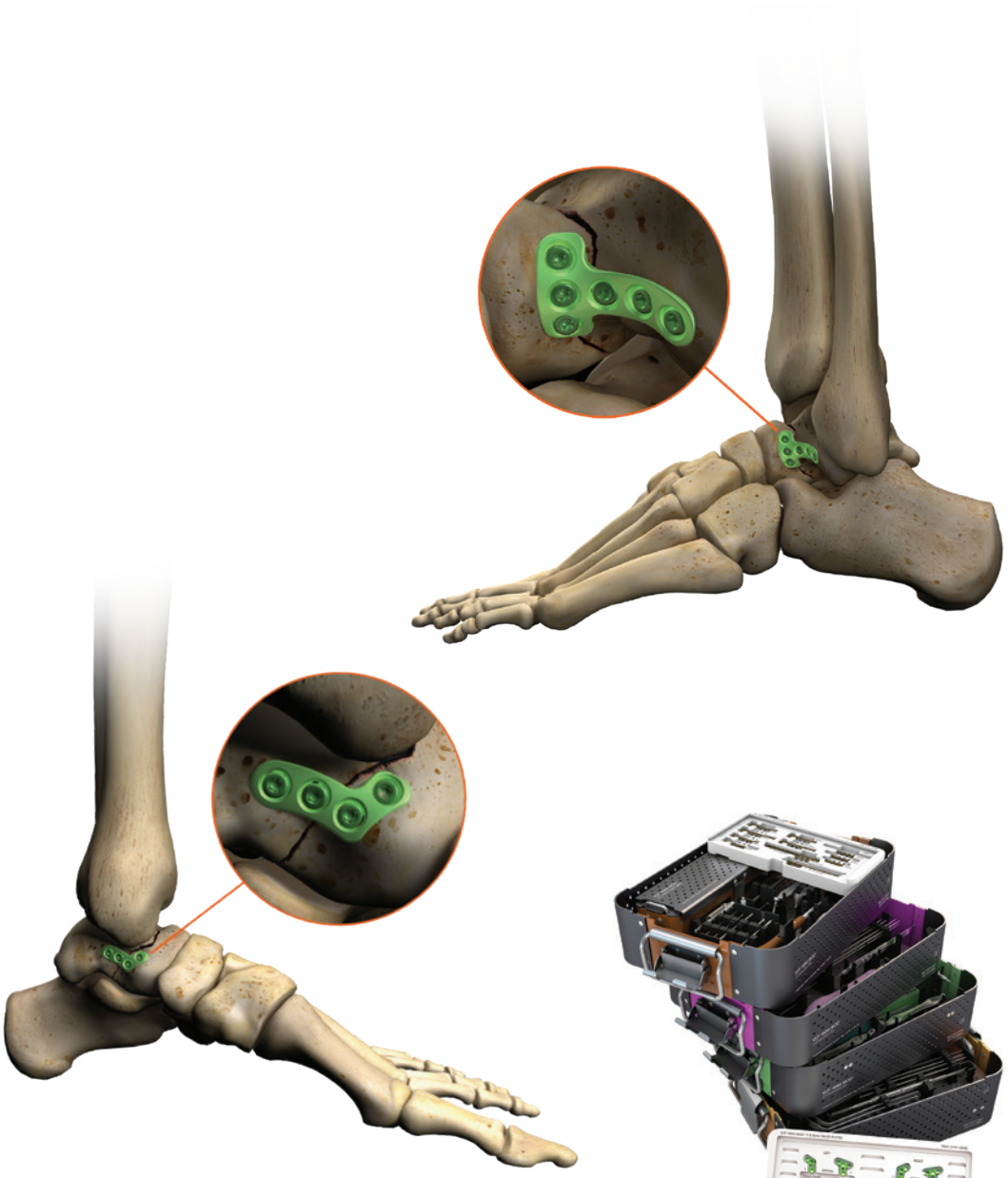
Surgical Technique

smith&nephew

VLP◇ MINI-MOD◇

Small Bone Plating System

Anatomic Talus Plate Module



Do not stack more than three trays during sterilization.

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Nota Bene

The following technique is for informational and educational purposes only. It is not intended to serve as medical advice. It is the responsibility of treating physicians to determine and utilize the appropriate products and techniques, according to their own clinical judgment, for each of their patients. For more information on the product, including its Indications for Use, contraindications, cleaning, sterilization and product safety information, please refer to the product's label and the Instructions for Use (IFU) for the product.

Introduction

The VLP® MINI-MOD® Small Bone Plating System is modular in design and is comprised of 1.5mm, 2.0mm and 2.4mm utility and anatomic specific plates and screws. All plates in the system are capable of accepting Non-Locking and Variable Angle Locking Screws to provide the flexibility needed to treat varying anatomy and unpredictable fracture patterns.

The VLP MINI-MOD 2.4mm Anatomic Talus Plate Module features two medial and two lateral low-profile plate options for talus fractures. Each plate hole can accept 2.4mm Non-Locking Cortical Screws, 2.4mm Variable Angle Locking Screws and 3.0mm Osteopenia Screws.

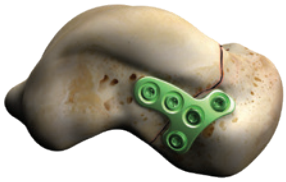
Do not stack more than three trays during sterilization.

Design Features and Benefits

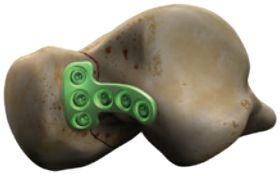
Anatomic, Approach-Specific Plates

Anatomic plates are available for both medial and lateral approaches. Multiple approach options allow flexibility in selecting the appropriate implant for each patient.

Medial L Plate



Medial T Plate

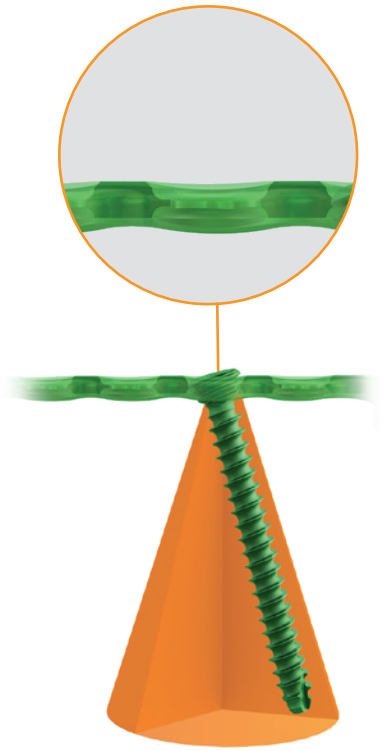


Lateral 3 Hole Plate

Lateral 4 Hole Plate

Surgical Freedom with Variable-Angle Locking Technology

Locking and non-locking screws can be used through all of the holes in the plate. Locking screws can be locked up to 15° off-axis, allowing you to position the plate in response to the anatomy and the requirements of the fracture – not where the plate fit dictates.

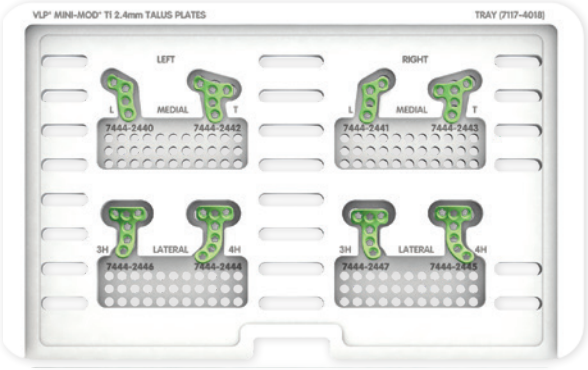


System Overview

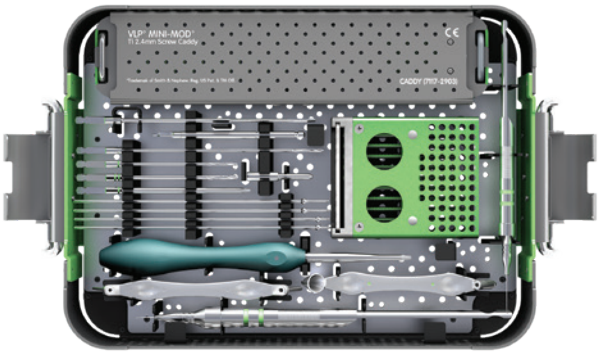
The Talus Plate Module is a supplement to the VLP® MINI-MOD® General Instrument and 2.4mm Instrument and Screw Set. The complementary instruments and screws for the Talus plates are contained within those sets. An overview of those sets can be found below.

Description	Set
VLP MINI-MOD Talus Plate Module	74442406
VLP MINI-MOD 2.4mm Instrument Set	71172450
VLP MINI-MOD 2.4mm Screw Set	74402400
VLP MINI-MOD 3.0mm Osteopenia Screw Set	74443000
VLP MINI-MOD General Instrument Set	71172460
VLP MINI-MOD Talus Template Module	74442408

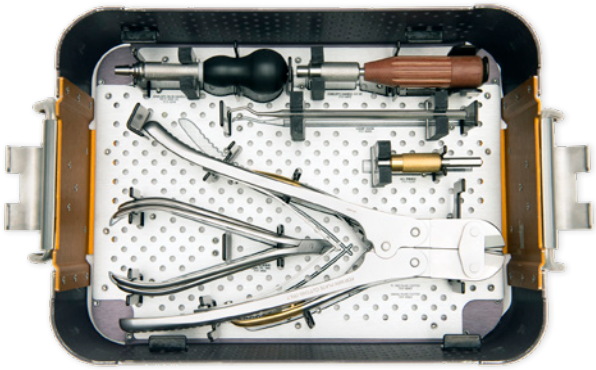
Note: A Talus Template Module should only be ordered if sterile packaged Talus Plates are required.

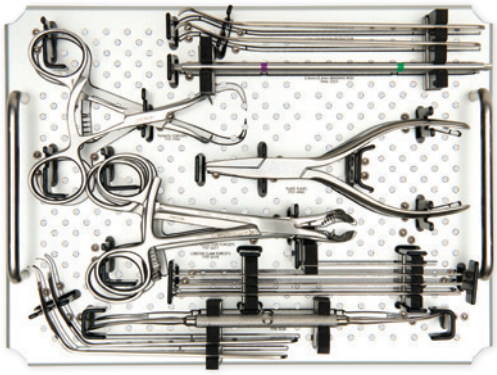


Talus Plate Module



2.4mm Instrument and Screw Set

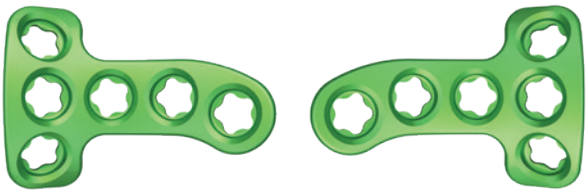




General Instrument Tray

Plates Overview

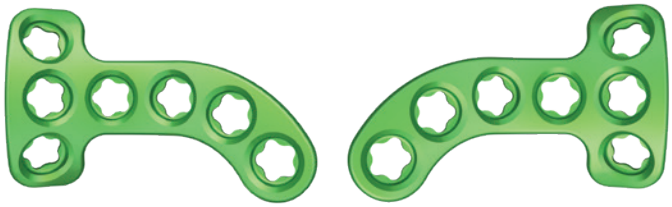
- Anatomically contoured
- Left and right specific
- Lateral plates available in two different lengths (3 and 4 hole)
- Medial plates available in two shapes (“L” and “T”)



Left Right

Lateral Plate, 3-Hole

Plate dimensions	
Plate thickness	1.4mm
Width	15.9mm
Length	21.8mm
Number of holes	6



Left Right

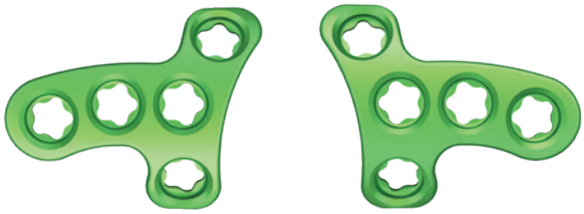
Lateral Plate, 4-Hole

Plate dimensions	
Plate thickness	1.4mm
Width	15.9mm
Length	25.1mm
Number of holes	7

Left Right

Medial Plate, L-Shaped

Plate dimensions	
Plate thickness	1.4mm
Width	11.3mm
Length	20.4mm
Number of holes	4



Left Right

Medial Plate, T-Shaped

Plate dimensions	
Plate thickness	1.4mm
Width	16.7mm
Length	20.4mm
Number of holes	5

Screws Overview

- T7 drive mechanism
- Low-profile heads reduce soft tissue irritation
- Standardized 1.8mm drill bit for all screw types

Self Tapping	Angulation in Plate	Drive Mechanism	Thread Outer Diameter	Threaded Pitch	Core Diameter	Drill Diameter	Lengths
2.4mm Cortex Screws 							
Yes	20°	T7	2.4mm	1.0mm	1.7mm	1.8mm	6 – 24mm (1mm increments) 26 – 50mm (2mm increments) 55 – 80mm (5mm increments)
2.4mm Variable Angle Locking Screws 							
Yes	15°	T7	2.4mm	1.0mm	1.7mm	1.8mm	6 – 24mm (1mm increments) 26 – 50mm (2mm increments) 55 – 80mm (5mm increments)
3.0mm Osteopenia Screws 							
No	10°	T7	3.0mm	1.5mm	1.7mm	1.8mm	10mm – 50mm (2mm increments) 55mm – 80mm (5mm increments)

Not all screw lengths are available within the standard set configuation but can be available upon request.

Surgical Technique

Surgical Approach

A two-incision technique should be utilized to ensure anatomic reduction of all talar neck and body fractures. An anteromedial approach can be used for fixation of the medial plates. This incision should start at the medial malleolus, extend over the talar neck (medial to the tibialis anterior tendon) and end at the navicular.

Elevate only the soft tissues needed to reduce the fracture.

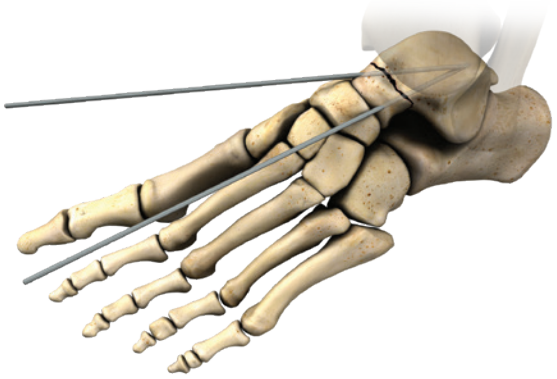
Anteromedial approach

An anterolateral approach can be used for fixation of the lateral plates. Start this incision at the tip of the fibula and extend it distally towards the lateral aspect of the talonavicular joint. Care must be taken to protect branches of the superficial peroneal nerve. The extensor digitorum brevis is split in line with its fibers. This incision should be made to gain access to the subtalar joint and lateral talus. Elevate only the soft tissues needed to reduce the fracture.

Anterolateral approach

Fracture Reduction

Articular fragments must be anatomically reduced prior to plate application and screw insertion. Reduction aids should be placed so as not to interfere with final plate placement. Reduce and provisionally secure bone fragments using Instruments from the VLP® MINI-MOD® General Instrument set. 1.6mm x 150mm K-Wires (71161016) can be used to provisionally fix bone fragments prior to definitive fixation. In addition, Reduction Forceps with Serrated Jaws (71173378) can also be used to assist in fracture reduction.

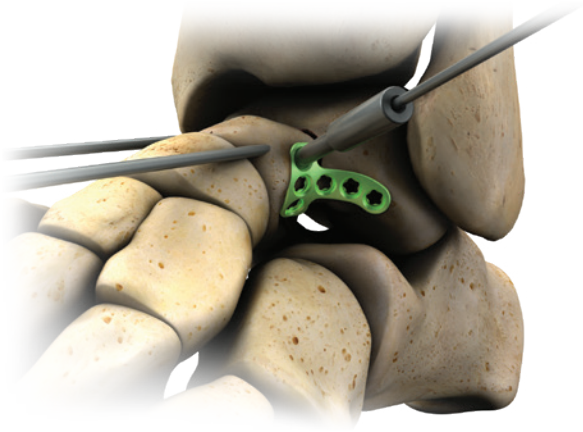


Implant Positioning

Select the 2.4mm VLP® MINI-MOD® Talus plate that best accommodates the patient's anatomy and fracture pattern. An acetate template (71081076) is available to assist with preoperative radiographic planning as well as titanium templates (Set Configuration: 74442408).

Plate Placement

After choosing the appropriate plate, the VLP 2.4mm Plate Holder (71174043) can be used to assist in the application of the plate as a provisional fixation tool. The plate holder should be twisted into a locking hole in the plate and a 1.6mm K-Wire (71161016) should be inserted through the center of the plate holder to fix the plate and holder to the bone. Once additional fixation has been added to the construct, the plate holder and 1.6mm K-Wire can be removed. If fixation is desired through the hole used for the plate holder device, a 1.8mm diameter drill (74462402 or 74462404) must be used prior to screw insertion.



Note: The VLP MINI-MOD 2.4mm Plate Holder is designed to assist in stabilizing the plate, not to manipulate plate placement in/under soft tissue or to facilitate percutaneous use.

If the plate does not properly fit the anatomy, Plate Bending Rods (74462024) from the VLP MINI-MOD General Instrument Set (71172460) can be used to further contour the implant before the plate is fixed to bone.

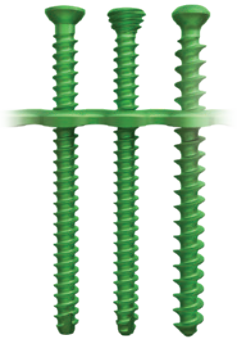
Note: Care should be taken while bending the plates as excessive deformation could result in fracture, breakage or loss of mechanical integrity.

Note: Care should be taken while cutting the plates to ensure no sharp points are left on the plate prior to insertion.

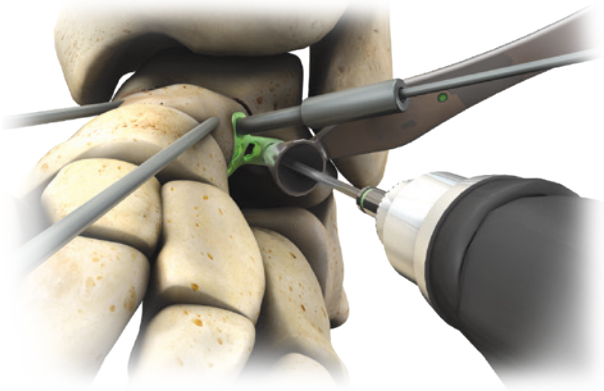
Screw Insertion Technique

The 2.4mm Talus Plates were designed to accept 2.4mm Non-Locking Screws, 2.4mm Variable-Angle Locking Screws and 3.0mm Osteopenia Screws.

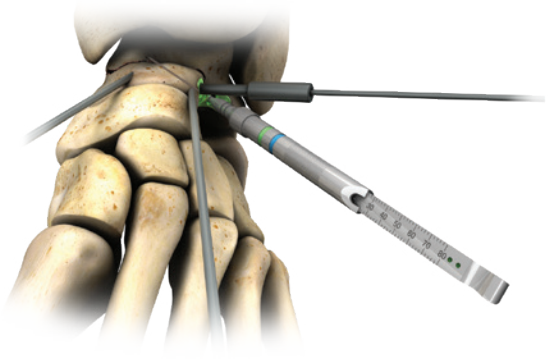
Step 1
Insert the 1.8mm Variable Angle/Fixed Angle Drill Guide (74462430) into the desired screw hole and drill accordingly with the 1.8mm Short Drill Bit (74462402).



Step 2
Measure for screw length by using the 2.4mm Screw Depth Gauge Short (71174959) or Long (71174928).

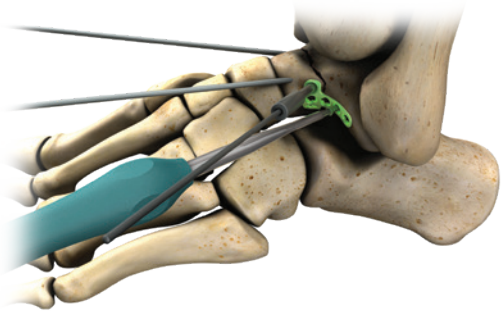


Step 3
Insert the appropriate length 2.4mm Non-Locking Screw, 2.4mm Variable Angle Locking Screw or 3.0mm Osteopenia Screw using the Self Retaining T7 Fixed Handle Driver (74462414)/T7 Driver Shaft with AO QC (71174927). Fill remaining screw holes as desired.



Note: A moderate amount of downward pressure should be applied through the driver when the head of a Locking Screw begins to engage the plate.

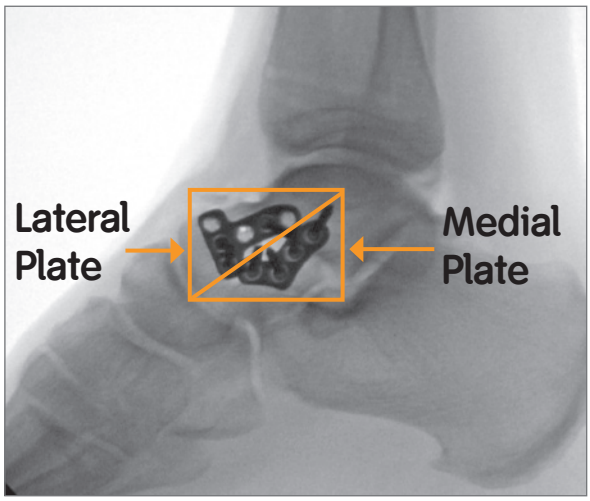
Note: Once locking screw head engagement with the plate is noticed, only a half turn is necessary to lock the screw.

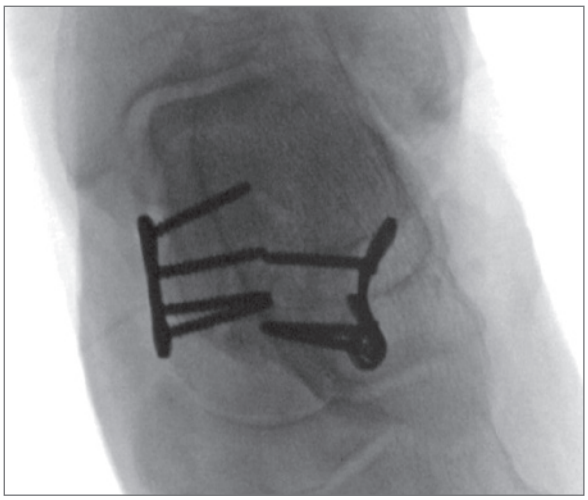


Note: Titanium 2.4mm Variable Angle Locking screws and locking holes should only be used twice.

Note: Care should be taken during dissection and reconstruction of soft tissue to reduce the occurrence of soft tissue adherence and/or tissue irritation.

Final imaging
Obtain final radiographic images to confirm optimal screw placement and length prior to closure.





Catalog Information

VLP◇ MINI-MOD◇ 2.4mm Talus Plate Module

Set No 74442406

Cat No	Description	Qty
71174018	VLP MINI-MOD Talus Tray	1
74442440	VLP MINI-MOD 2.4mm Talus Plate Medial L Left Sterile	1
74442441	VLP MINI-MOD 2.4mm Talus Plate Medial L Right Sterile	1
74442442	VLP MINI-MOD 2.4mm Talus Plate Medial T Left Sterile	1
74442443	VLP MINI-MOD 2.4mm Talus Plate Medial T Right Sterile	1

Cat No	Description	Qty
74442444	VLP MINI-MOD 2.4mm Talus Plate Lateral 4-Hole Left Sterile	1
74442445	VLP MINI-MOD 2.4mm Talus Plate Lateral 4-Hole Right Sterile	1
74442446	VLP MINI-MOD 2.4mm Talus Plate Lateral 3-Hole Left Sterile	1
74442447	VLP MINI-MOD 2.4mm Talus Plate Lateral 3-Hole Right Sterile	1

VLP MINI-MOD General Instrument Set

Set No 71172460

Cat No	Description	Qty
71101530	Freer Elevator	1
71161008	K-Wire 0.8mm x 70mm Length Trocar Point	6
71161010	K-Wire 1.0mm x 150mm Length Trocar Point	6
71161012	Peri-Loc K-Wire 1.25mm x 150mm Length Trocar Point	6
71161016	Peri-Loc K-Wire 1.6mm x 150mm Length Trocar Point	6
71170014	Mini Quick Coupling Bulb Handle S/D	1
71170015	Small Quick Coupling Handle	1
71170043	Sharp Hook	1
71170047	Plate Cutting Forceps	1
71170055	Hohmann Retractor 6mm Width	2

Cat No	Description	Qty
71170061	Bending Pliers For 1.5mm & 2.0mm Plates	2
71170065	Wire Cutters 175mm Length	1
71172906	VLP MINI-MOD Tray Lid	1
71172907	VLP MINI-MOD General Instrument Tray	1
71173369	Hohmann Retractor Bent 8mm Width	2
71173377	Reduction Forceps w/Points Broad	1
71173378	Reduction Forceps w/Serrated Jaw	1
71173528	Cannulated AO To Trinkle Adaptor	1
71174960	Mini Plate Bending Pliers	1
71177193	Jewelers Handle AO QC	1
71177194	Termite Forceps	1
74462024	2.0mm/2.4mm Bending Rod	2

VLP MINI-MOD 2.4mm Instrument Set

Set No 71172450

Cat No	Description	Qty
71172901	VLP MINI-MOD 2.4mm Module Tray	1
71172906	VLP MINI-MOD Tray Lid	1
71174043	VLP 2.5mm Plate Holder	1
71174916	2.4mm Tap With AO Quick Connect	1
71174927	T7 Driver Shaft With AO Quick Connect	1
71174928	Depth Gauge For 2.4mm and 2.7mm Screws	1
71174959	Short Depth Gauge For 2.4mm and 2.7mm Screws	1
71174969	Countersink for 2.4mm Screws with AO Quick Connect	1

Cat No	Description	Qty
74462402	VLP MINI-MOD 1.8mm Drill Short AO QC	2
74462404	VLP MINI-MOD 1.8mm Drill Long AO QC	2
74462406	1.8mm Provisional Fixation Wire Short	4
74462408	1.8mm Provisional Fixation Wire Long	4
74462410	VLP MINI-MOD 2.4mm Overdrill Short AO QC	2
74462414	Fixed Handle T7 Driver	1
74462428	1.8/2.4mm Double Ended Drill Guide Small	1
74462430	1.8mm VA Drill Guide Small	1

VLP® MINI-MOD® 2.4mm Screw Set

Set No 74402400

Cat No	Description	Qty
71172903	VLP MINI-MOD 2.4mm Screw Caddy with Lid	1
74402401	Washer for VLP 2.4mm T7 Screws	6
74402406N	VLP Titanium 2.4mm x 6mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402407N	VLP Titanium 2.4mm x 7mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402408N	VLP Titanium 2.4mm x 8mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402409N	VLP Titanium 2.4mm x 9mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402410N	VLP Titanium 2.4mm x 10mm Cortex Screw T7 Self-Tapping Non-Sterile	6
74402411N	VLP Titanium 2.4mm x 11mm Cortex Screw T7 Self-Tapping Non-Sterile	6
74402412N	VLP Titanium 2.4mm x 12mm Cortex Screw T7 Self-Tapping Non-Sterile	6
74402413N	VLP Titanium 2.4mm x 13mm Cortex Screw T7 Self-Tapping Non-Sterile	6
74402414N	VLP Titanium 2.4mm x 14mm Cortex Screw T7 Self-Tapping Non-Sterile	6
74402415N	VLP Titanium 2.4mm x 15mm Cortex Screw T7 Self-Tapping Non-Sterile	6
74402416N	VLP Titanium 2.4mm x 16mm Cortex Screw T7 Self-Tapping Non-Sterile	6
74402418N	VLP Titanium 2.4mm x 18mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402420N	VLP Titanium 2.4mm x 20mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402422N	VLP Titanium 2.4mm x 22mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402424N	VLP Titanium 2.4mm x 24mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402426N	VLP Titanium 2.4mm x 26mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402428N	VLP Titanium 2.4mm x 28mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402430N	VLP Titanium 2.4mm x 30mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402432N	VLP Titanium 2.4mm x 32mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402434N	VLP Titanium 2.4mm x 34mm Cortex Screw T7 Self-Tapping Non-Sterile	3
74402436N	VLP Titanium 2.4mm x 36mm Cortex Screw T7 Self-Tapping Non-Sterile	2
74402438N	VLP Titanium 2.4mm x 38mm Cortex Screw T7 Self-Tapping Non-Sterile	2
74402440N	VLP Titanium 2.4mm x 40mm Cortex Screw T7 Self-Tapping Non-Sterile	2
74402442N	VLP Titanium 2.4mm x 42mm Cortex Screw T7 Self-Tapping Non-Sterile	2
74402444N	VLP Titanium 2.4mm x 44mm Cortex Screw T7 Self-Tapping Non-Sterile	2
74402446N	VLP Titanium 2.4mm x 46mm Cortex Screw T7 Self-Tapping Non-Sterile	2
74412406N	VLP Titanium 2.4mm x 6mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412407N	VLP Titanium 2.4mm x 7mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412408N	VLP Titanium 2.4mm x 8mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412409N	VLP Titanium 2.4mm x 9mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412410N	VLP Titanium 2.4mm x 10mm Locking Screw T7 Self-Tapping Non-Sterile	6
74412411N	VLP Titanium 2.4mm x 11mm Locking Screw T7 Self-Tapping Non-Sterile	6
74412412N	VLP Titanium 2.4mm x 12mm Locking Screw T7 Self-Tapping Non-Sterile	6
74412413N	VLP Titanium 2.4mm x 13mm Locking Screw T7 Self-Tapping Non-Sterile	6
74412414N	VLP Titanium 2.4mm x 14mm Locking Screw T7 Self-Tapping Non-Sterile	6
74412415N	VLP Titanium 2.4mm x 15mm Locking Screw T7 Self-Tapping Non-Sterile	6
74412416N	VLP Titanium 2.4mm x 16mm Locking Screw T7 Self-Tapping Non-Sterile	6
74412418N	VLP Titanium 2.4mm x 18mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412420N	VLP Titanium 2.4mm x 20mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412422N	VLP Titanium 2.4mm x 22mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412424N	VLP Titanium 2.4mm x 24mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412426N	VLP Titanium 2.4mm x 26mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412428N	VLP Titanium 2.4mm X 28mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412430N	VLP Titanium 2.4mm x 30mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412432N	VLP Titanium 2.4mm x 32mm Locking Screw T7 Self-Tapping Non-Sterile	3

*N – denotes non-sterile product

VLP® MINI-MOD® 2.4mm Screw Set (continued)
Set No 74402400

Cat No	Description	Qty
74412434N	VLP Titanium 2.4mm x 34mm Locking Screw T7 Self-Tapping Non-Sterile	3
74412436N	VLP Titanium 2.4mm x 36mm Locking Screw T7 Self-Tapping Non-Sterile	2
74412438N	VLP Titanium 2.4mm x 38mm Locking Screw T7 Self-Tapping Non-Sterile	2
74412440N	VLP Titanium 2.4mm x 40mm Locking Screw T7 Self-Tapping Non-Sterile	2
74412442N	VLP Titanium 2.4mm x 42mm Locking Screw T7 Self-Tapping Non-Sterile	2
74412444N	VLP Titanium 2.4mm x 44mm Locking Screw T7 Self-Tapping Non-Sterile	2
74412446N	VLP Titanium 2.4mm x 46mm Locking Screw T7 Self-Tapping Non-Sterile	2

VLP MINI-MOD 3.0mm Screw Set
Set No 74443000

Cat No	Description	Qty
71174019	VLP MINI-MOD 3.0mm Ost Scr Caddy with Lid	1
74423010N	VLP Titanium 3.0mm x 10mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423012N	VLP Titanium 3.0mm x 12mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423014N	VLP Titanium 3.0mm x 14mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423016N	VLP Titanium 3.0mm x 16mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423018N	VLP Titanium 3.0mm x 18mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423020N	VLP Titanium 3.0mm x 20mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423022N	VLP Titanium 3.0mm x 22mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423024N	VLP Titanium 3.0mm x 24mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423026N	VLP Titanium 3.0mm x 26mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423028N	VLP Titanium 3.0mm x 28mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423030N	VLP Titanium 3.0mm x 30mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423032N	VLP Titanium 3.0mm x 32mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423034N	VLP Titanium 3.0mm x 34mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423036N	VLP Titanium 3.0mm x 36mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423038N	VLP Titanium 3.0mm x 38mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423040N	VLP Titanium 3.0mm x 40mm Osteopenia Screw T7 Fully Threaded Non-Sterile	2
74423042N	VLP Titanium 3.0mm x 42mm Osteopenia Screw T7 Fully Threaded Non-Sterile	1
74423044N	VLP Titanium 3.0mm x 44mm Osteopenia Screw T7 Fully Threaded Non-Sterile	1
74423046N	VLP Titanium 3.0mm x 46mm Osteopenia Screw T7 Fully Threaded Non-Sterile	1
74423048N	VLP Titanium 3.0mm x 48mm Osteopenia Screw T7 Fully Threaded Non-Sterile	1

*N – denotes non-sterile product

VLP® MINI-MOD® Ti 2.4mm and 3.0mm Long Screw Set

Set No 74402405

Cat No	Description	Qty
71172904	2.4mm Long Screw Caddy	1
74402455	VLP Titanium 2.4mm x 55mm Cortex Screw T7 Self-Tapping	2
74402460	VLP Titanium 2.4mm x 60mm Cortex Screw T7 Self-Tapping	2
74402465	VLP Titanium 2.4mm x 65mm Cortex Screw T7 Self-Tapping	2
74402470	VLP Titanium 2.4mm x 70mm Cortex Screw T7 Self-Tapping	2
74402475	VLP Titanium 2.4mm x 75mm Cortex Screw T7 Self-Tapping	2
74402480	VLP Titanium 2.4mm x 80mm Cortex Screw T7 Self-Tapping	2
74412455	VLP Titanium 2.4mm x 55mm Locking Screw T7 Self-Tapping	2
74412460	VLP Titanium 2.4mm x 60mm Locking Screw T7 Self-Tapping	2
74412465	VLP Titanium 2.4mm x 65mm Locking Screw T7 Self-Tapping	2
74412470	VLP Titanium 2.4mm x 70mm Locking Screw T7 Self-Tapping	2
74412475	VLP Titanium 2.4mm x 75mm Locking Screw T7 Self-Tapping	2
74412480	VLP Titanium 2.4mm x 80mm Locking Screw T7 Self-Tapping	2
74423055	VLP Titanium 3.0mm x 55mm Osteopenia Screw T7 Fully Threaded	2
74423060	VLP Titanium 3.0mm x 60mm Osteopenia Screw T7 Fully Threaded	2
74423065	VLP Titanium 3.0mm x 65mm Osteopenia Screw T7 Fully Threaded	2
74423070	VLP Titanium 3.0mm x 70mm Osteopenia Screw T7 Fully Threaded	2
74423075	VLP Titanium 3.0mm x 75mm Osteopenia Screw T7 Fully Threaded	2
74423080	VLP Titanium 3.0mm x 80mm Osteopenia Screw T7 Fully Threaded	2

*N – denotes non-sterile product

Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Smith & Nephew representative or distributor if you have questions about the availability of Smith & Nephew products in your area.

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