

3.5 / 4.5 MM VARIABLE ANGLE LCP®

PERIPROSTHETIC PROXIMAL FEMUR PLATING SYSTEM

Surgical Technique



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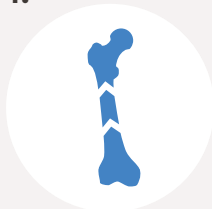
The AO Principles of Fracture Management

Mission

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

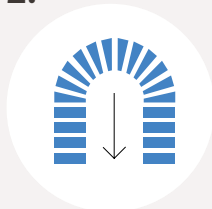
AO Principles^{1,2}

1.



Fracture reduction and fixation to restore anatomical relationships.

2.



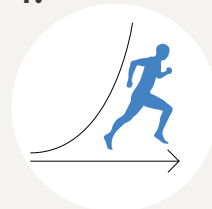
Fracture fixation providing absolute or relative stability, as required by the “personality” of the fracture, the patient, and the injury.

3.



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

4.



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

1. Müller ME, Allgöwer M, Schneider R, Willenegger H. Manual of Internal Fixation. 3rd ed. Berlin, Heidelberg New York: Springer 1991.

2. Buckley RE, Maran CG, Apivatthakakul T. Principles of Fracture management 3rd ed. Vol 1* Principles, Vol. 2: Specific fractures. Thieme; 2017.

Vancouver Classification

The original Vancouver Classification for periprosthetic fractures of the proximal femur divides the femur into three anatomic locations, namely A, trochanteric region, B, around or just distal to the stem, and C, well distal to the stem.³

Type A Fractures: Fracture occurs in the trochanteric region, involving the greater trochanter (Type A_G) and/or lesser trochanter (Type A_L).

Type B1 Fractures: Fracture occurs around or just distal to the stem, with the prosthesis stable (well-fixed).

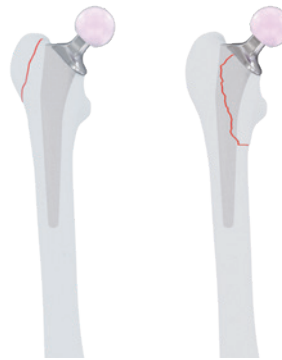
Type B2 Fractures: Fracture occurs around or just distal to the stem, with the prosthesis unstable (loose).

Type B3 Fractures: Fracture occurs around or just distal to the stem, with the implant loose and inadequate bone stock.

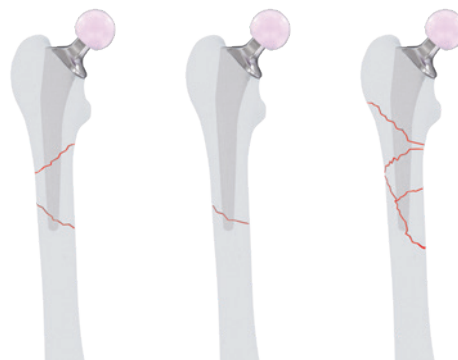
Type C Fractures: Fracture occurs well distal to the stem.

■ Notes for Type C Fractures:

- The 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plating System is not indicated for fixation of Vancouver Type C fractures, except for the VA-LAP, when used with other DePuy Synthes LCP and VA-LCP plates.
- Consider other fixation options, specifically the DePuy Synthes 4.5 mm VA-LCP Curved Condylar Plate System or the DePuy Synthes RFN-Advanced Retrograde Femoral Nailing System (RFNA).



Type A



Type B



Type C

³ Schuetz M, Perka C. Periprosthetic Fracture Management. Stuttgart, New York: Thieme. 2013.

Indications and Contraindications

Indications

The DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plates and Proximal Femur Hook Plates are indicated for the treatment of periprosthetic fractures and fractures in the presence of intramedullary implants in the proximal end segment and the proximal and middle 1/3 of the diaphyseal segment of the femur, and non-unions or malunions of such fractures, in adult patients, particularly in osteoporotic and osteopenic bone.



The DePuy Synthes 3.5 mm VA Locking PPFx Greater Trochanter Ring Attachment Plates (when used with 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plate) are indicated for fixation or re-attachment of the greater trochanter following fracture or osteotomy.



The DePuy Synthes 3.5 mm VA Locking PPFx Distal Femur Spanning Attachment Plates (when used with either the 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plate or the Proximal Femur Hook Plate) can be used to extend the length of a plate construct to the lateral condyles.



The DePuy Synthes 3.5 mm VA Locking Attachment Plate is indicated to augment the stabilization of fractures, including periprosthetic fractures (Vancouver Type B when used with either the 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plate or Proximal Femur Hook Plate; Vancouver Type B and C when used with other DePuy Synthes LCP plates and VA-LCP plates) and fractures in the presence of intramedullary implants, in the femur, tibia, and humerus.



The DePuy Synthes 3.5 mm VA Locking PPFx Greater Trochanter Hook Plates are indicated for fixation or re-attachment of the greater trochanter following fracture or osteotomy.



Contraindications

The DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plating System is contraindicated for independent fixation if the hip stem requires immediate revision.

The DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plate with 2-holes (shortest plate) is contraindicated for diaphyseal periprosthetic femoral fractures where distal fixation of the construct is not achievable.

The DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate with 5 holes (shortest plate) is contraindicated for diaphyseal periprosthetic femoral fractures where distal fixation of the construct is not achievable.

The DePuy Synthes 3.5 mm VA Locking PPFx Distal Femur Spanning Attachment Plates are contraindicated for spanning a fracture.

System Overview

3.5/4.5 mm Variable Angle LCP® Periprosthetic Proximal Femur Plating System: Providing Versatile Options

The DePuy Synthes 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plating System provides two main plate options and three additional attachment plates for the treatment of periprosthetic hip fractures:

3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plate

- Designed with a focus on Type B or combined Type A_G and B fractures
- Features an anatomically shaped plate head and shaft
- Includes 3.5 mm VA locking holes in the plate head and proximal plate shaft to provide fixation points around a hip prosthesis
- Contains 4.5 mm VA-LCP combi holes in the plate shaft, accepting 4.5 mm Cortex Screw, 5.0 mm VA Locking Screw or 5.0 mm VA PPFx Locking Screw

See page 8 for additional details.

3.5 mm VA Locking PPFx Greater Trochanter Ring Attachment Plate

- Can be assembled with the Proximal Femur Plate to add multiple opportunities for fixation or re-attachment of the Greater Trochanter following fracture or osteotomy

See page 9 for additional details.

3.5 mm VA Locking Attachment Plate (VA-LAP)

- Attaches to both main plates and serves as an alternative to cables for added fixation around a hip prosthesis

See page 13 for additional details.

Variable Angle Screw Technology

- All plates are equipped with Variable Angle (VA) Locking Screw holes, allowing angulation possibilities of up to 15° in each direction around the central axis of the plate hole

3.5 mm VA Locking PPFx Distal Femur Spanning Attachment Plate

- Attaches to both main plates to extend the construct to the intact distal femur

See page 12 for additional details.



Note that not all implants are currently available in all markets.

3.5 mm VA Locking PPFx Greater Trochanter Hook Plate

- Short implant without plate shaft for simple Type A_G fractures as well as Greater Trochanter osteotomies

See page 11 for additional details.

3.5 mm VA Locking Attachment Plate (VA-LAP)

- Attaches to both main plates and serves as an alternative to cables for added fixation around a hip prosthesis

See page 13 for additional details.

Screw Types

- Broad choice of screw types to cover diverse needs and preferences: 3.5 mm Cortex Screws, 3.5 mm VA Locking Screws, 4.5 mm Cortex Screws, 5.0 mm VA Locking Screws and 5.0 mm VA PPFx Locking Screws



3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate

- Designed with a focus on Type A_G and B fractures
- Features an anatomically shaped plate head and shaft
- Provides two proximal hooks as well as cable slots to reduce the greater trochanter
- Includes 3.5 mm VA locking holes in the plate head and proximal plate shaft to provide fixation points around a hip prosthesis
- Contains 4.5 mm VA-LCP combi holes in the plate shaft, accepting 4.5 mm Cortex Screw, 5.0 mm VA Locking Screw or 5.0 mm VA PPFx Locking Screw

See page 10 for additional details.

3.5 mm VA Locking PPFx Distal Femur Spanning Attachment Plate

- Attaches to both main plates to extend the construct to the intact distal femur

See page 12 for additional details.

Quick Start Guides

PROXIMAL FEMUR PLATE

Full Name: 3.5 mm/4.5 mm VA-LCP PPFx
Proximal Femur Plates
Abbreviation: VA-PFP
Surgical Technique: Page 19



- 1 3.5 mm VA Locking holes, offset from axis of femur (6x)
- 2 Holes with undercuts for wires or suture attachment (6x)
- 3 Threaded hole and slot to connect GT Ring Attachment Plate
- 4 Anterior and posterior 3.5 mm VA Locking offset holes (# increasing with plate length)
- 5 4.5 mm VA-LCP combi holes
 - Proximal: Centered (# increasing with plate length)
 - Distal: Staggered (6x)

Portfolio

Available in LEFT and
RIGHT profiles

2-hole (119 mm)

Note:

Do not use 2-hole plate standalone, always
use with GT Ring Attachment Plate.



12-hole (388 mm)

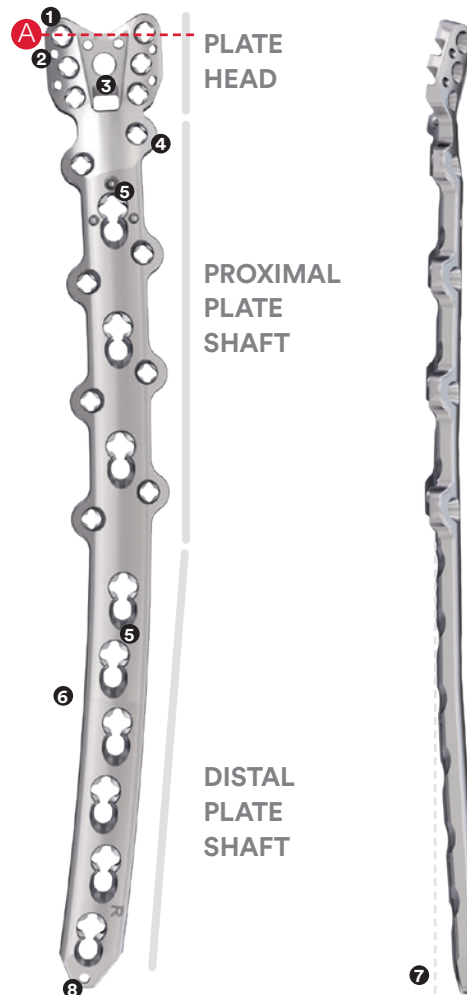
11-hole (354 mm)

10-hole (320 mm)

9-hole (285 mm)

8-hole (251 mm)

7-hole (216 mm)



- 6 Curvature to fit femoral shaft anatomy
- 7 Distal flare to fit distal femur anatomy (for 9-hole and longer)
- 8 Distal plate tip with wire hole and slot for Articulated Tension Device (ATD)

GT RING ATTACHMENT PLATE

Full Name: 3.5 mm VA Locking PPFx Greater Trochanter Ring Attachment Plate

Abbreviation: VA-GTRAP

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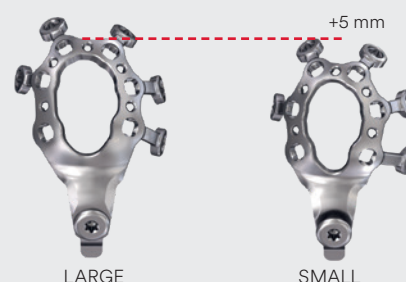
- ❶ Contourable superior arms, with 3.5 mm VA Locking holes (2x)
- ❷ Contourable posterior arm, with 3.5 mm VA Locking hole (1x)
- ❸ Contourable anterior arms, with 3.5 mm VA Locking holes (2x)
- ❹ Holes with undercuts for wires or suture attachment (5x)
- ❺ Inner ring with 3.5 mm VA Locking holes (6x)
- ❻ One-screw connection to Proximal Femur Plate, pre-assembled, with a tab for secondary connection

Portfolio

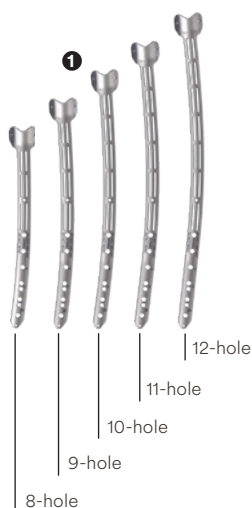
Available in LEFT and RIGHT profiles

Note:

Do not use standalone,
always use with Proximal
Femur Plate.



SIZING TEMPLATES FOR PROXIMAL FEMUR PLATE AND GT RING ATTACHMENT PLATE



❶ Templates for Proximal Femur Plate:

- Multiple sizes with same shape as actual implants, to review plate fit and plate length
- A 7-hole plate should be chosen if the 8-hole sizing template is considered too long.
- Slots correspond to proximal plate shaft which is intended to span the fracture zone
- Can be assembled with templates for Distal Femur Spanning Attachment Plate and can be overlaid with templates for GT Ring Attachment Plate to plan the overall construct length
- Multiple wire holes and slots for temporary fixation
- Available for LEFT and RIGHT plate profiles

❷ Templates for GT Ring Attachment Plate:

- Available in 2 head sizes, SMALL and LARGE, corresponding with actual implants
- Simulate an assembly with a 2-hole Proximal Femur Plate, which is representative of the proximal end of all other Proximal Femur Plate lengths
- Wire hole and slots for temporary fixation
- Available for LEFT and RIGHT plate profiles



Note:

Do not bend sizing templates.

HOOK PLATE

Full Name: 3.5 mm/4.5 mm VA-LCP PPFx
Proximal Femur Hook Plates

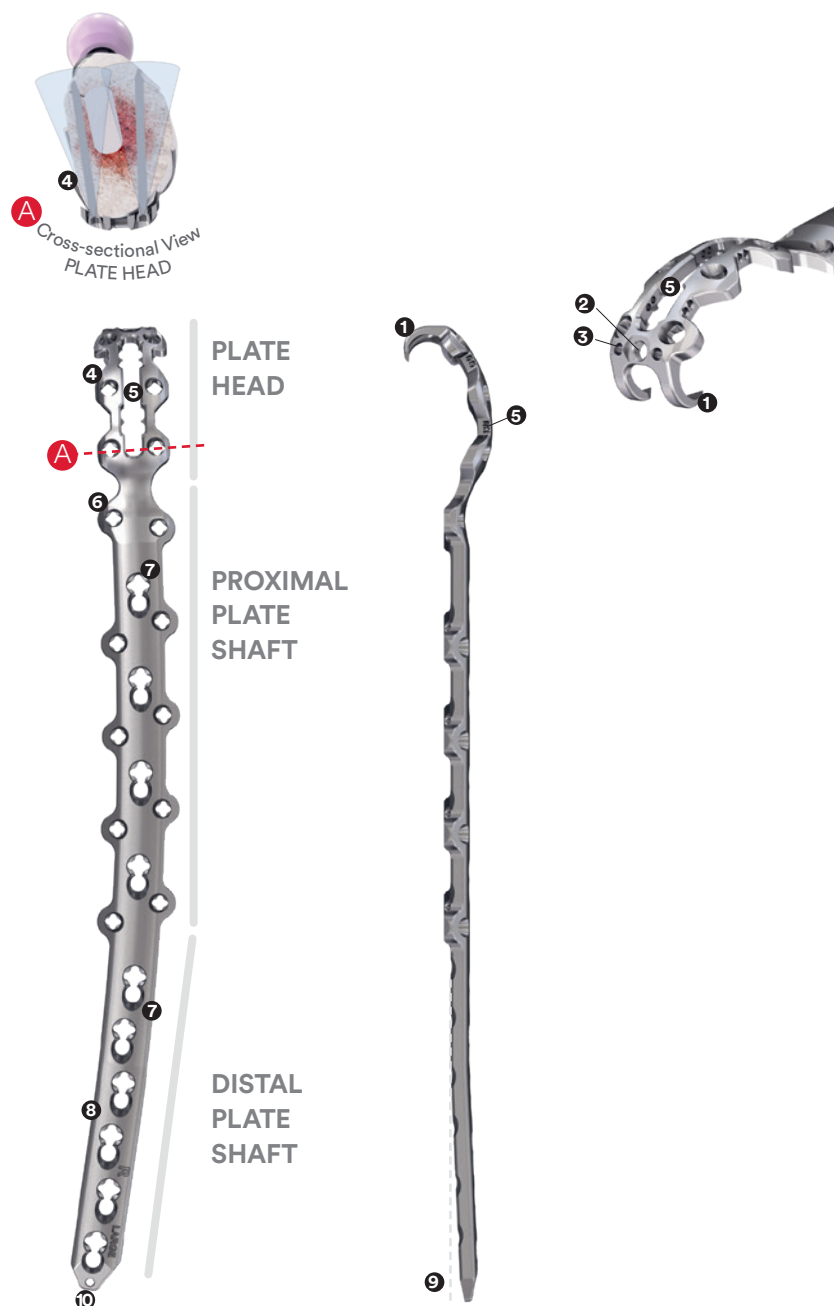
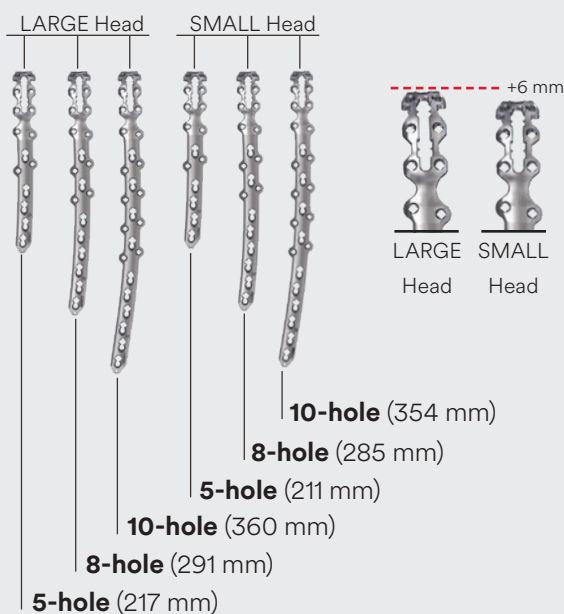
Abbreviation: VA-PFHP

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- 1 Two superior sharp hooks, posterior one slightly elongated
- 2 Threaded hole for insertion handle
- 3 Wire holes for provisional fixation (2x)
- 4 3.5 mm VA Locking holes, offset from axis of femur (6x)
- 5 Center slot to place two DePuy Synthes cables and cable crimps with corresponding holes for cable passage
- 6 Anterior and posterior 3.5 mm VA Locking offset holes (# increasing with plate length)
- 7 4.5 mm VA-LCP combi holes
 - Proximal: Centered (# increasing with plate length)
 - Distal: Staggered (6x)

Portfolio

Available in LEFT and
RIGHT profiles



- 8 Curvature to fit femoral shaft anatomy
- 9 Distal flare to fit distal femur anatomy (10-hole plate only)
- 10 Distal plate tip with wire hole and slot for Articulated Tension Device (ATD)

GT HOOK PLATE

Full Name: 3.5 mm VA Locking PPFx
Greater Trochanter Hook Plate

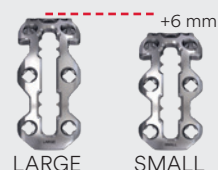
Abbreviation: VA-GTHP

Surgical Technique: Page 28



- ❶ Two superior sharp hooks
- ❷ Threaded hole for insertion handle
- ❸ Wire holes for provisional fixation (2x)
- ❹ 3.5 mm VA Locking holes, offset from axis of femur (6x)
- ❺ Center slot to place two DePuy Synthes cables and cable crimps with corresponding holes for cable passage

Portfolio



**UNIVERSAL profile
for left and right**

SIZING TEMPLATES FOR PROXIMAL FEMUR HOOK PLATE AND GT HOOK PLATE

LARGE SMALL

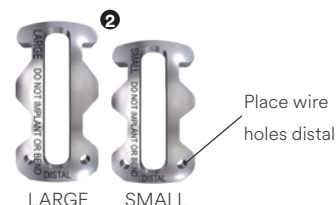


❶ Templates for Proximal Femur Hook Plate:

- Available in two head sizes, corresponding to SMALL and LARGE implants, without hooks
- UNIVERSAL shape for left and right implant profiles
- One template length; simulates an 8-hole plate length (8H), but includes side notches to indicate the length of a 5-hole plate (5H); a longer 10-hole plate should be chosen if the 8-hole sizing template is considered too short
- Wire hole and slots for temporary fixation

❷ Templates for GT Hook Plate:

- Available in two head sizes, corresponding to SMALL and LARGE implants, without hooks
- UNIVERSAL shape for left and right implant profiles
- Use templates with wire holes placed distally
- Distal wire holes for temporary fixation



■ Note:

Do not bend sizing templates.

DISTAL FEMUR SPANNING ATTACHMENT PLATE

Full Name: 3.5 mm VA Locking PPFx Distal Femur Spanning Attachment Plate

Abbreviation: VA-DSAP

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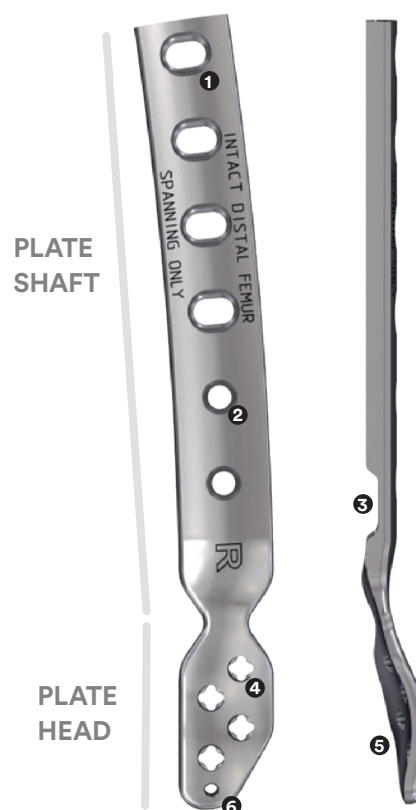
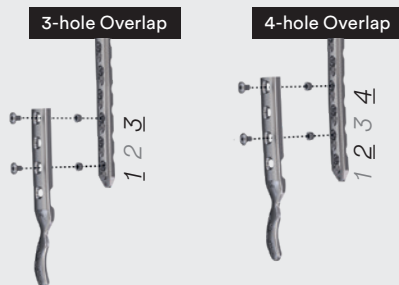
- ❶ Slots in the plate shaft for two-point connection with the main plate (4x)
- ❷ 6-hole plate includes separate 4.5 mm Cortex Screw holes (2x)
- ❸ Bending Iron slot
- ❹ 3.5 mm VA Locking holes in plate head (4x)
- ❺ Pre-shaped plate head to fit intact distal femur and lateral condyle
- ❻ Wire hole for provisional fixation

▲ WARNING:

The Distal Femur Spanning Attachment Plate can only be used if the distal femur is intact. Do not span a fracture as this could lead to implant failure.

Information on Plate Overlap

- The overall construct length can be influenced by the length of the main plate, the length of the Distal Femur Spanning Attachment Plate and by the amount of overlap.
- The Distal Femur Spanning Attachment Plate must overlap the main plate by **either three or four holes**.
- Two connecting screws** are required to attach the Distal Femur Spanning Attachment Plate to **two non-adjacent holes** of the main plate.
- Any open 4.5 mm VA-LCP combi hole (grey, non-underlined numbers below) can be filled with a 5.0 mm VA locking screw before attaching the Distal Femur Spanning Attachment Plate. 4.5 mm Cortex Screws can be used alternatively, but only after assembly of the Distal Femur Spanning Attachment Plate to the underlying plate.



Portfolio

Available in LEFT and RIGHT profiles

■ Notes:

- Do not use standalone, always use with Proximal Femur Plate or Proximal Femur Hook Plate
- Do not use with 2-hole Proximal Femur Plate or 5-hole Proximal Femur Hook Plate



VA LOCKING ATTACHMENT PLATE

Full Name: 3.5 mm VA Locking Attachment Plate

Abbreviation: VA-LAP

Surgical Technique: Page 38



- ① Contourable tabs with 3.5 mm VA Locking holes (4x)
- ② Middle slot, allowing a one-point connection with the main plate, using one connecting screw

Note:

Do not use standalone, always use in combination with a main plate, such as the Proximal Femur Plate or the Proximal Femur Hook Plate.*

SIZING TEMPLATES FOR DISTAL FEMUR SPANNING ATTACHMENT PLATE



4-hole



4-hole
LONG



6-hole



- Sizing templates to review plate fit and plate length
- Same shape as actual implants
- Attaches to Proximal Femur Plate templates or overlays with actual Proximal Femur Plate or Proximal Femur Hook Plate implants
- Available for LEFT and RIGHT

- ① Overlap indicator, works with etching on Proximal Femur Plate template
- ② Connecting point to assemble with Proximal Femur Plate template by using the Connecting Screw for the Distal Femur Spanning Attachment Plate template
- ③ Wire hole and slots for provisional fixation

Note:

Do not bend sizing templates.

* The VA-LAP is available with 4 holes only and also compatible with the following plates (all DePuy Synthes): 4.5 mm VA-LCP Curved Condylar, 4.5 mm LCP Straight and Curved Condylar, 4.5 mm Straight and Curved Broad LCP, and LISS/LCP Distal Femur. The LCP LAP is not compatible with the 3.5 mm/4.5 mm VA-LCP PPfX Proximal Femur Plate and the 3.5 mm/4.5 mm VA-LCP PPfX Proximal Femur Hook Plate.

Plate Selection and Preoperative Planning

1. Evaluate Hip Stem Stability

Prosthesis stability should be carefully assessed, by considering clinical history and image analysis, as well as intraoperative findings.

Generally, plate fixation is indicated for fractures around a stable stem, where sufficient mechanical fixation can be achieved.

Revision may be indicated if the stem is loose. Plate fixation can also be used to support revision.

▲ **WARNING:**

Prosthesis stability, in combination with other patient related factors, may impact the clinical outcome, including bone healing. The decision whether to use the DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plating System in patients with such conditions must be made by the physician taking into account the risks versus the benefits to the individual patient.





2. Select Plate Construct

■ Note:

This surgical technique provides recommendations towards plate, screw and cable configurations. If required, additional fixation options should be considered to achieve the best fixation for the individual clinical situation.

▲ WARNING:

The following overview shows a recommendation of plate constructs per Vancouver fracture type. Important information on minimum fixation recommendations is included later in this Surgical Technique, as referenced with each image. Failure to achieve fixation recommendations increases the risk of construct failure, malalignment, and/or delayed bone healing.

	PROXIMAL FEMUR PLATE	HOOK PLATE
<div><p>TYPE A_G</p><p>INCL. FIXATION OF TROCHANTERIC OSTEOTOMIES</p></div>	<div><p>Proximal Femur Plate (2-hole) with a GT Ring Attachment Plate</p></div> <div><p>See Page 20 for fixation recommendations and detailed instructions.</p></div>	<div><p>GT Hook Plate</p><p>Proximal Femur Hook Plate (5-hole)</p></div> <div><p>See Page 29 for fixation recommendations and detailed instructions.</p></div>

■ Note:

The 2-hole Proximal Femur Plate, the 5-hole Proximal Femur Hook Plate, and the GT Hook Plate **cannot** be combined with a Distal Femur Spanning Attachment Plate.

	PROXIMAL FEMUR PLATE	HOOK PLATE
<p>COMBINED TYPE A_G / B</p> <p>OR TYPE B AROUND PROXIMAL PART OF STEM</p> 	 <p>Proximal Femur Plate with a GT Ring Attachment Plate (Options shown: VA-LAP and Distal Femur Spanning Attachment Plate)</p> <p>See Page 20 for fixation recommendations and detailed instructions.</p>	 <p>Proximal Femur Hook Plate (Options shown: VA-LAP and Distal Femur Spanning Attachment Plate)</p> <p>See Page 29 for fixation recommendations and detailed instructions.</p>
	PROXIMAL FEMUR PLATE	HOOK PLATE
<p>TYPE B</p> <p>AROUND TIP OF STEM</p> 	 <p>Proximal Femur Plate (Options shown: VA-LAP and Distal Femur Spanning Attachment Plate)</p>  <p>Proximal Femur Plate with a GT Ring Attachment Plate (Options shown: VA-LAP and Distal Femur Spanning Attachment Plate)</p> <p>See Page 20 for fixation recommendations and detailed instructions.</p>	 <p>Proximal Femur Hook Plate (Options shown: VA-LAP and Distal Femur Spanning Attachment Plate)</p> <p>See Page 29 for fixation recommendations and detailed instructions.</p>

Notes on VA Locking Attachment Plate:

- Consider adding a VA-LAP to increase screw density where needed.
- See Page 38 for fixation recommendations and detailed instructions.

Notes on Distal Femur Spanning Attachment Plate:

- Consider adding a Distal Femur Spanning Attachment Plate to span the intact distal femur.
- See Page 43 for fixation recommendations and detailed instructions.

3. Finalize Preoperative Plan

Ensure a preoperative radiographic assessment is performed and complete preoperative planning.

■ **Note:**

Detailed preoperative planning based on a thorough radiographic assessment is strongly recommended and required for implant pre-selection.

▲ **WARNING:**

The DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plating System should not be implanted in cases where a localized, active bacterial infection is known to be present at the intended site.

Preparation and Reduction

1. Position the Patient

Position the patient supine or in a lateral position on a radiolucent operating table. (1) Viewing the femur under fluoroscopy in both the lateral and AP views is necessary.

2. Perform Approach

Make an appropriate incision as demanded by the fracture type and location, allowing accurate reduction and later implant placement while minimizing the extent of dissection.

3. Reduce Fracture

■ Note:

If required, re-evaluate if the stem is loose (see “Evaluate Hip Stem Stability” on page 14 for further information).

Reduce and temporarily secure fragments by using appropriate reduction techniques and instruments.

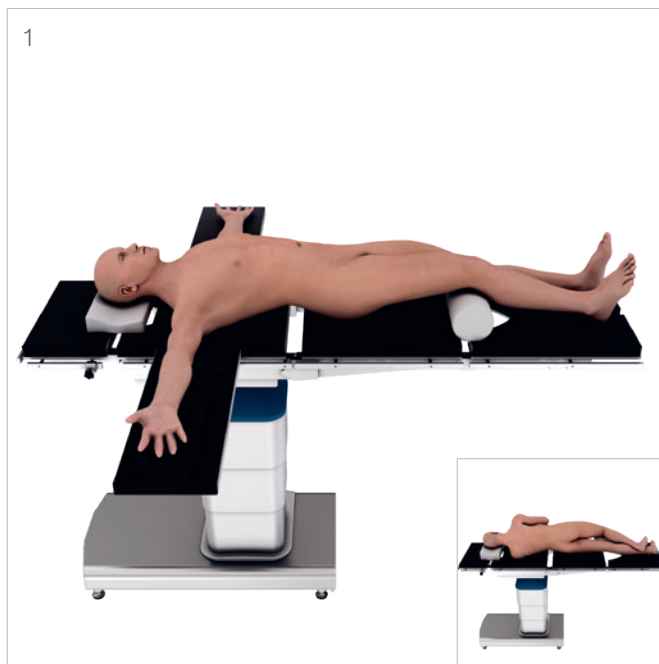



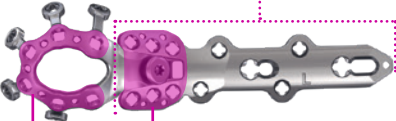

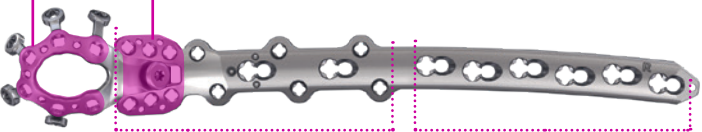

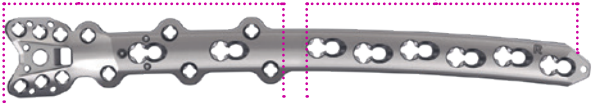
Plate Insertion – Proximal Femur Plate with or without Greater Trochanter Ring Attachment Plate



Consider Final Construct Configuration and Fixation

▲ WARNING:

The following overview shows a recommendation of plate constructs and fixation recommendations per Vancouver fracture type. The minimum fixation recommendations shown below are based on the results of mechanical testing performed on the unique plate constructs and are important to ensure construct stability. Failure to achieve fixation recommendations increases the risk of construct failure, malalignment, and/or delayed bone healing.

<p>TYPE A_G</p> <p>INCL. FIXATION OF TROCHANTERIC OSTEOTOMIES</p> 	<p>Min. 6 Cortices in Head/Shaft of Plate</p> <p>Min. 4x Locking Screws in Inner Ring</p> <p>Min. 3x Locking Screws in Plate Head</p> <p>Proximal Femur Plate (2-hole) with a GT Ring Attachment Plate</p> 
<p>COMBINED TYPE A_G / B</p> <p>OR TYPE B AROUND PROXIMAL PART OF STEM</p> 	<p>Proximal Femur Plate (8-hole shown) with a GT Ring Attachment Plate</p> 
<p>TYPE B</p> <p>AROUND TIP OF STEM</p> 	<p>Min. 6 Cortices in Proximal Fragment</p> <p>Min. 6 Cortices in Distal Fragment</p> <p>Proximal Femur Plate (8-hole shown)</p> 

■ Note:

Type B fracture lines must always be covered by the proximal plate shaft.

1. Determine Size / Length

Instruments

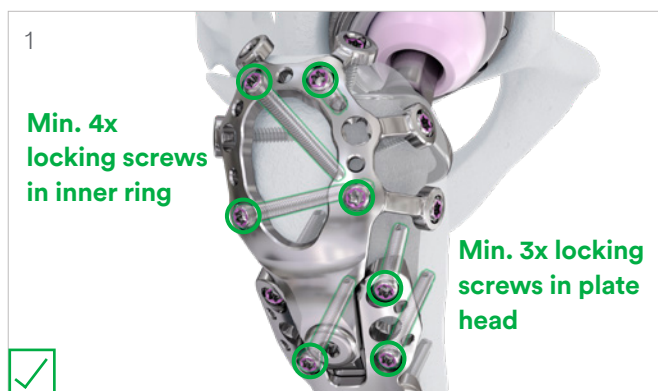
310.243	2.5 mm Drill Tip Guide Wire, length 200 mm (optional)
03.118.020	2.8 mm Compression Wire, length 200 mm (optional)
03.221.180 – 03.221.187	Sizing Template for VA-LCP PPFx Proximal Femur Plates
03.221.100 – 03.221.103	Sizing Template for VA-Locking PPFx Greater Trochanter Ring Attachment Plates (optional)

Determine the size and length of the Proximal Femur Plate to be used. The plate head should be placed just below the vastus ridge and the plate shaft should be aligned with the shaft of the femur. Consider final screw positions while choosing plate size and length.

▲ WARNING:

Screw locations and configurations to be considered for plate size and length definition:

- For Vancouver Type A₆ fractures where a GT Ring Attachment Plate is used:
 - It is recommended to use a minimum of three 3.5 mm VA locking screws in the head region of the Proximal Femur Plate and a minimum of four 3.5 mm VA locking screws in the inner ring of the GT Ring Attachment Plate, while additional screws in the arms are optional. Failure to place sufficient screws may stress the connecting screw and lead to construct failure or loss of bony fixation. (1)
 - A minimum of 6 cortices of fixation should be used distal to the fracture in the head/shaft regions of the Proximal Femur Plate, as fewer cortices of fixation may result in construct failure or loss of bony fixation.
- For Vancouver Type B fracture fixation, it is recommended to add screws to achieve sufficient mechanical fixation, e.g. by adding bicortical or



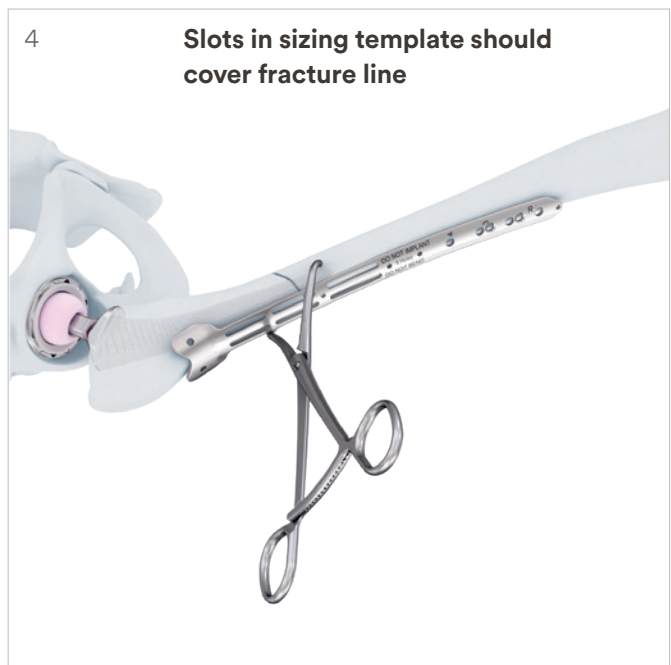
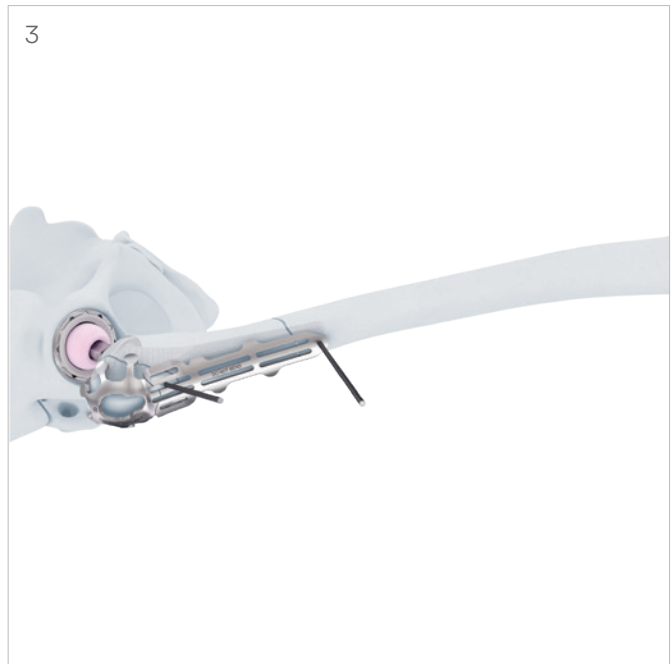
unicortical screws that cover at least 6 cortices of fixation in the proximal fragment and 6 cortices of fixation in the distal fragment. Fewer cortices of fixation may result in construct failure or loss of bony fixation.

- Screws through the Distal Femur Spanning Attachment Plate alone and not through the main plate **cannot** be used to achieve sufficient fixation in the distal fragment. Use of this plate for fracture fixation may lead to construct failure.
- For the proximal plate shaft, it is not recommended to place three screws in diagonally aligned holes. Doing so could potentially cause a stress riser in the bone. (2)
- If the distal shaft of the Proximal Femur Plate is contoured, then the most proximal 4.5 mm VA-LCP combi hole in the distal shaft must be filled with either a 5.0 mm VA locking screw or a 4.5 mm cortex screw to shield the contoured plate distally, reducing the risk of construct failure in the contoured region.

Optional: Use the respective sizing templates to choose the appropriate size and length as required (see “Quick Start Guide” on page 9 for sizing template options):

If a GT Ring Attachment Plate is to be added to the construct, use the sizing templates for the GT Ring Attachment Plate to first determine the proper GT Ring Attachment Plate size (SMALL vs. LARGE) relative to the anatomical profile of the GT. Insert the SMALL or LARGE template (available for both LEFT or RIGHT femurs) and choose the proper plate size. (3) Note that the GT Ring Attachment Plate template simulates an assembly with a 2-hole Proximal Femur Plate, which is representative of an assembly to the proximal end of any length Proximal Femur Plate.

Then, use the sizing template for the Proximal Femur Plate to determine plate fit and length. Insert a template (with the approximate number of holes and either LEFT or RIGHT) to confirm plate fit and choose the proper plate length. If the 8-hole sizing template is considered too long, a 7-hole plate should be selected. The Vancouver Type B fracture should be covered by the slots in the sizing templates to ensure that the fracture is later spanned by the proximal plate shaft of the implant. (4) If needed, a surgical ruler can be used to support plate length definition.



Note that the sizing template for the Proximal Femur Plate cannot be assembled with the sizing template for the GT Ring Attachment Plate; however, to plan the overall construct length, the Proximal Femur Plate template may be overlaid on top of the GT Ring Attachment Plate template, by aligning the most proximal edge of the Proximal Femur Plate template with the etched curve on the GT Ring Attachment Plate template. (5)

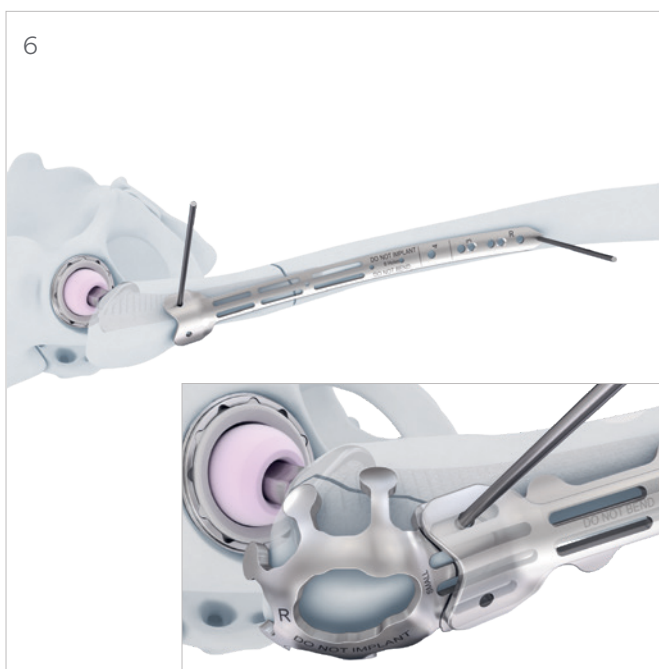
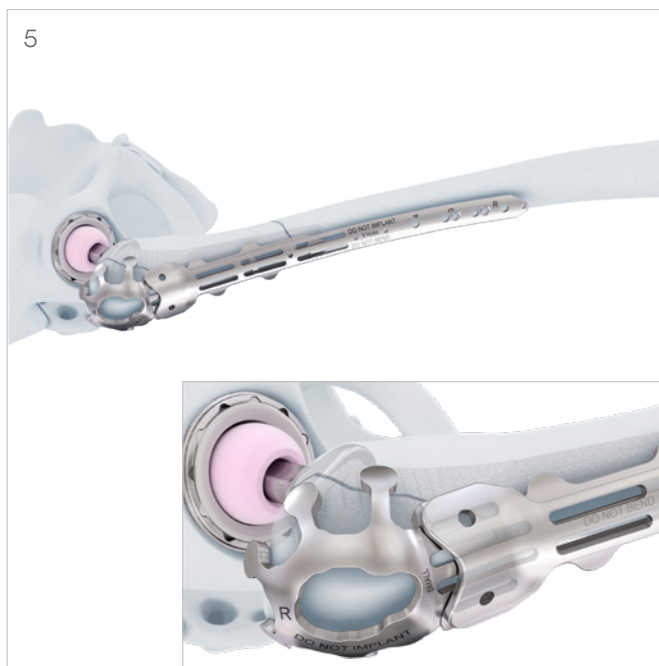
If needed, wires can be used to provisionally fix the sizing templates on the bone. (6)

■ **Notes:**

- If spanning the entire femur, consider distal plate fit, either by using a Distal Femur Spanning Attachment Plate (see “Distal Femur Spanning Attachment Plate Insertion” on page 43) or by bending the Proximal Femur Plate in the distal shaft (see “Contour Plate” on page 24). Ensure that 6 cortices of fixation in the distal fragment are achieved with the Proximal Femur Plate, keeping in mind that two shaft holes will be required to later attach the Distal Femur Spanning Attachment Plate (see Page 43 for additional considerations).
- Consider the total construct length if using a GT Ring Attachment Plate and/or a Distal Femur Spanning Attachment Plate.
- Consider adding VA Locking Attachment Plates (VA-LAP) to increase screw density where needed (see “VA Locking Attachment Plate Insertion” on page 38).

▲ **WARNING:**

The Distal Femur Spanning Attachment Plate can only be used if the distal femur is intact. Do not span a fracture as this could lead to implant failure.



2. Optional: Contour Plate

Instruments

329.300 Plate Bending Press

Plate bending is not recommended as this may weaken the plate and the plate-screw interface. However, there may be cases in which plate bending is clinically necessary. In such cases, plates should be contoured per the instructions below.

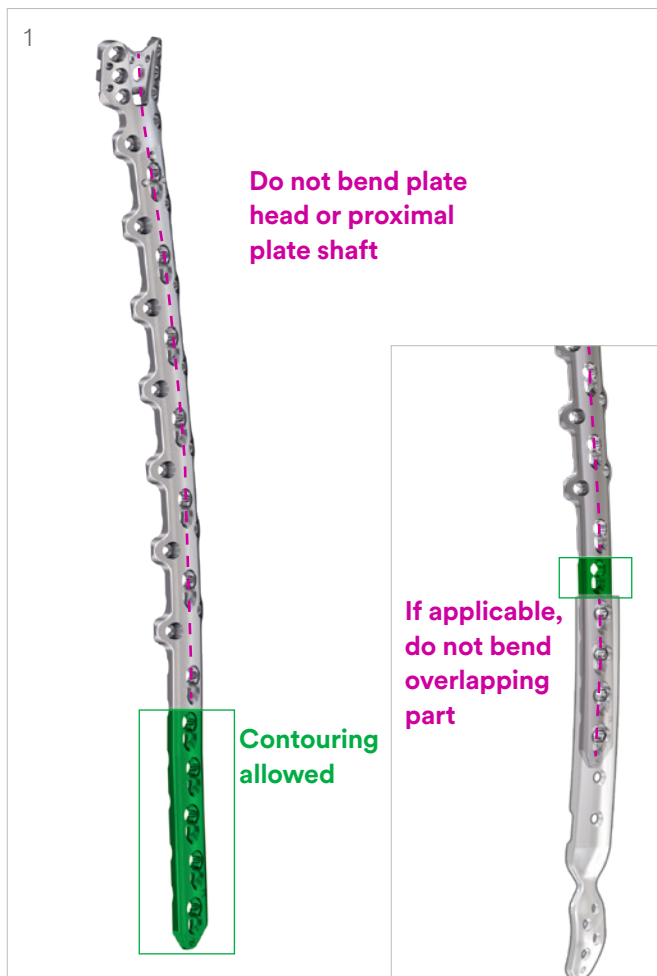
The Proximal Femur Plate should only be contoured in the distal shaft (marked green) in order to fit the anatomy of the distal femur. (1) Bend the plate incrementally between 4.5 mm VA-LCP combi holes using the plate bending press. The most proximal 4.5 mm VA-LCP combi hole in the distal shaft must be filled with a screw to shield the contoured plate distally.

▲ Precautions:

- Do not contour the plate back and forth, as this may weaken the plate.
- Do not bend the plate at the level of the holes, as this may damage the holes.
- Do not bend the plate head or proximal plate shaft, as this may weaken the plate, damage the holes, or prevent connection with the GT Ring Attachment Plate.

■ Notes:

- If a Distal Femur Spanning Attachment Plate is planned, do not bend the overlapping part of the distal shaft of the Proximal Femur Plate as this may affect the ability to connect the plates.
- If a VA-LAP is planned, do not bend the plate at that location to ensure fit of the VA-LAP.



3. Insert Plate

Instruments

310.243	2.5 mm Drill Tip Guide Wire, length 200 mm
03.118.020	2.8 mm Compression Wire, length 200 mm (optional)
03.231.013	T-Handle with Torque Limiting Function, 6 Nm
03.231.015	Screwdriver Shaft Stardrive®, T25, length 180 mm, for Hexagonal Coupling 6.0 mm

■ Notes:

- If used, attach and secure the optional GT Ring Attachment Plate before the main plate is in-situ.
- If used, the optional Distal Femur Spanning Attachment Plate and VA-LAP should be added when the main plate is in-situ.

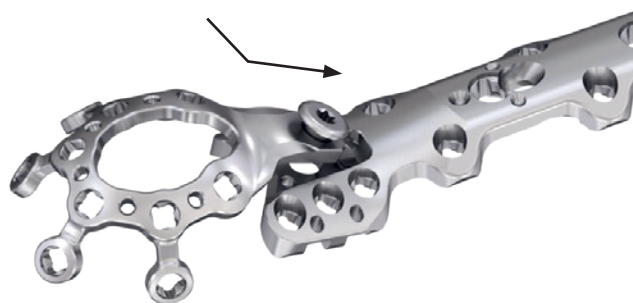
If using the optional GT Ring Attachment Plate, pre-assemble the GT Ring Attachment Plate to the Proximal Femur Plate by inserting the tab of the GT Ring Attachment Plate into the slot of the Proximal Femur Plate. (1)

Attach screwdriver shaft to the **6 Nm torque limiting handle** to tighten the connecting screw for the GT Ring Attachment Plate. (2)

▲ Precaution:

If using the optional GT Ring Attachment Plate, ensure that the connecting screw is tightened with the **6 Nm Torque Limiting Handle** before the assembly is introduced in-situ. Plates may not properly assemble and the connection may be weakened if connected or tightened in-situ.

1 Assemble on back table



2



Plate Insertion – Proximal Femur Plate with
or without Greater Trochanter Ring
Attachment Plate

Insert the plate proximal to distal, down the length of the bone. (3) Slide the plate distally until the Proximal Femur Plate head is seated properly on the proximal femur, with the plate head just below the vastus ridge and the plate shaft aligned with the shaft of the femur. Additionally, the GT Ring Attachment Plate, if used, should be placed against the greater trochanter.

If needed, provisionally fix the plate, for example, by using wires. (4)

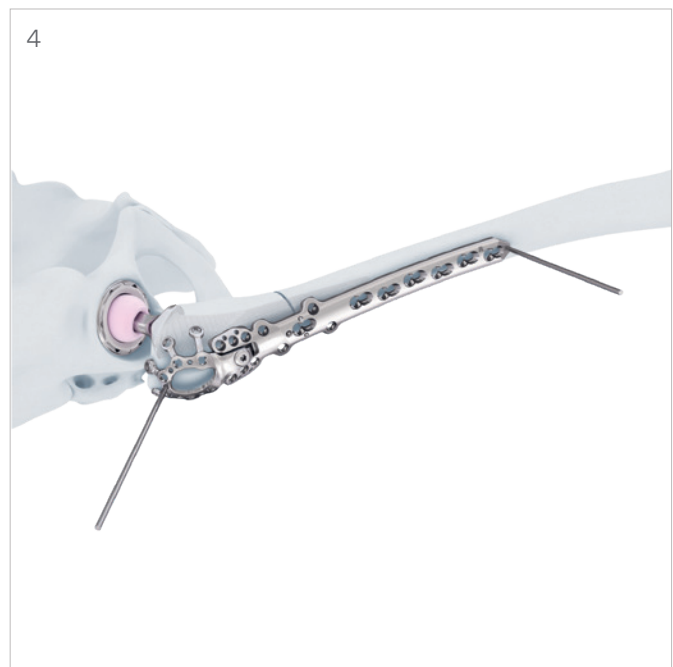
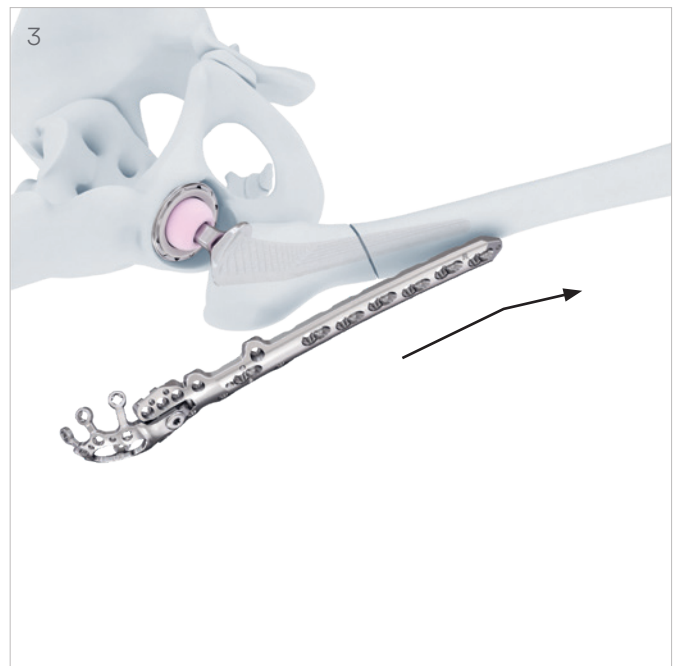
■ **Note:**

Wires used to hold the sizing templates do not correlate with wires used for provisional fixation of the plate.

● Check implant position under image intensifier control.

▲ **Precaution:**

Consider whether or not a Distal Femur Spanning Attachment Plate is planned as it may affect the final position of the Proximal Femur Plate, or the GT Ring Attachment Plate and Proximal Femur Plate assembly.



4. Optional: Contour Arms of the GT Ring Attachment Plate

Instruments

03.221.251 Bending Driver

If using the optional GT Ring Attachment Plate, all five arms (marked green) can be contoured to fit the anatomy of the proximal femur in-situ. (1) Insert two bending drivers, one into the hole of the arm to be bent and one into the adjacent hole of the inner ring. (2)

Contour the arm and repeat for other arms as required. While bending, consider sensitive soft tissue below the arms.

▲ Precautions:

- Do not contour the arms back and forth, as this may weaken or break the arms.
- Do not bend the GT Ring Attachment Plate in any area other than the arms (e.g. do not bend the inner plate ring), as this may weaken the plate or damage the holes.
- Do not cut the arms of the GT Ring Attachment Plate, as sharp edges could result.

See screw insertion on page 53 for details on how to drill, measure and insert screws.

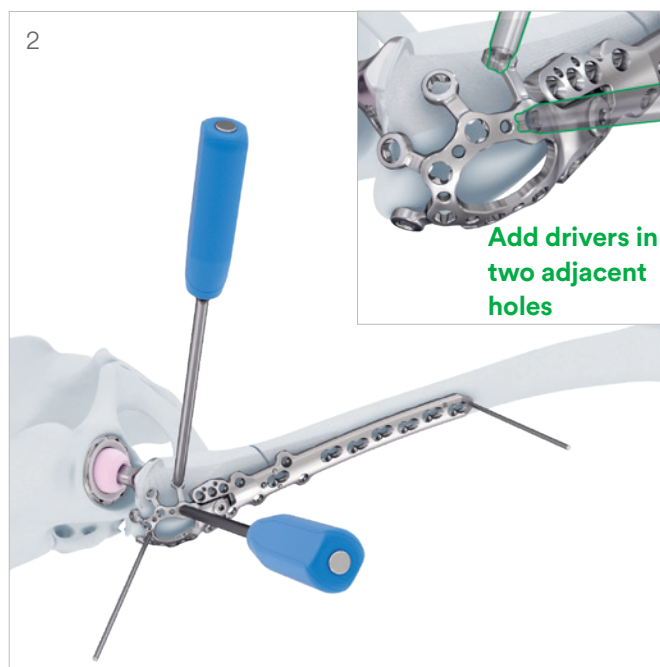
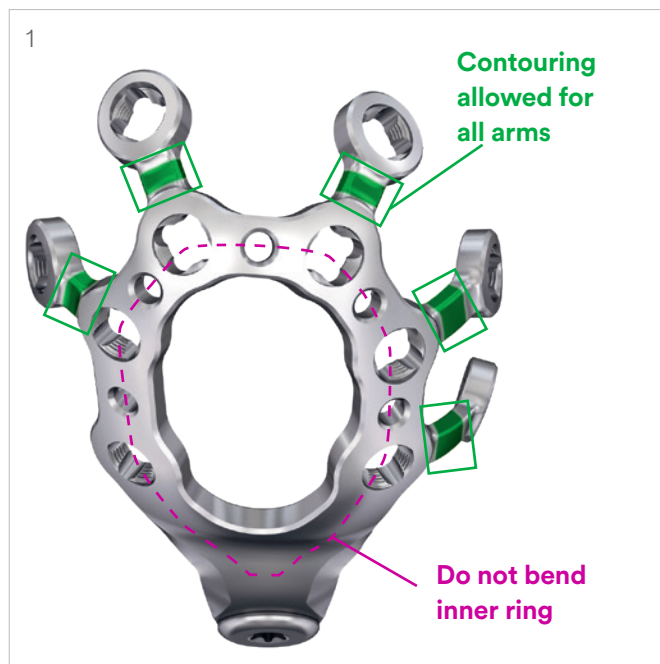



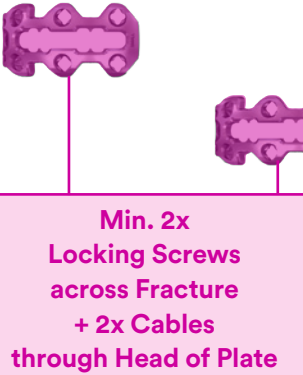

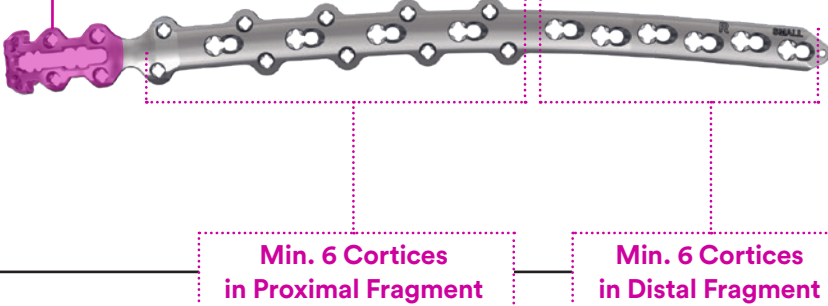


Plate Insertion – Hook Plate



Consider Final Construct Configuration and Fixation

▲ WARNING:

The following overview shows a recommendation of plate constructs and fixation recommendations per Vancouver fracture type. The minimum fixation recommendations shown below are based on the results of mechanical testing performed on the unique plate constructs and are important to ensure construct stability. Failure to achieve fixation recommendations increases the risk of construct failure, malalignment, and/or delayed bone healing.

<p>TYPE A_G</p> <p>INCL. FIXATION OF TROCHANTERIC OSTEOTOMIES</p> 	<p>GT Hook Plate</p>  <p>Min. 6 Cortices in Shaft of Plate</p> <p>Proximal Femur Hook Plate (5-hole)</p>
<p>COMBINED TYPE A_G / B</p> <p>OR TYPE B AROUND PROXIMAL PART OF STEM</p> 	<p>Proximal Femur Hook Plate (10-hole shown)</p> 
<p>TYPE B</p> <p>AROUND TIP OF STEM</p> 	<p>Additional Cables as needed</p> <p>Proximal Femur Hook Plate (10-hole shown)</p> 

■ Note:

Type B fracture lines must always be covered by the proximal plate shaft.

1. Determine Size / Length

Instruments

310.243	2.5 mm Drill Tip Guide Wire, length 200 mm (optional)
03.118.020	2.8 mm Compression Wire, length 200 mm (optional)
03.221.092	Sizing Template for VA-Locking PPFx Greater Trochanter Hook Plate, small
03.221.093	Sizing Template for VA-Locking PPFx Greater Trochanter Hook Plate, large
03.221.094	Sizing Template for VA-LCP PPFx Proximal Femur Hook Plates, small
03.221.095	Sizing Template for VA-LCP PPFx Proximal Femur Hook Plates, large

Determine the size and length of plate to be used. The plate head should fit against the greater trochanter and the plate shaft should be aligned with the shaft of the femur. Consider final screw positions while choosing plate size and length.

▲ WARNINGS:

Screw locations and configurations to be considered for plate size and length definition:

- For Vancouver Type A₂ fracture fixation, it is recommended to use a minimum of two 3.5 mm VA locking screws and two cables in the head of the plate, crossing the fracture/osteotomy, and a minimum of 6 cortices of fixation distal to the fracture in the plate shaft, if applicable. Failure to achieve minimum fixation may result in construct failure or migration of the trochanteric fragment. (1)
- For Vancouver Type B fracture fixation, it is recommended to add screws to achieve sufficient mechanical fixation, e.g. by adding bicortical or unicortical screws that cover at least 6 cortices of fixation in the proximal fragment and 6 cortices of fixation in the distal fragment. Fewer cortices of fixation may result in construct failure or loss of bony

1

Min. 2x locking screws crossing fracture and 2x cables through head of plate



2

Do not place three screws in diagonally aligned holes.



fixation.

- Screws through the Distal Femur Spanning Attachment Plate alone and not through the main plate **cannot** be used to achieve sufficient fixation in the distal fragment. Use of this plate for fracture fixation may lead to construct failure.
- For the proximal plate shaft, it is not recommended to place three screws in diagonally aligned holes. Doing so could potentially cause a stress riser in the bone. (2)
- If the distal shaft of the Proximal Femur Hook Plate is contoured, then the most proximal 4.5 mm VA-LCP combi hole in the distal shaft must be filled with either a 5.0 mm VA locking screw or a 4.5 mm cortex screw to shield the contoured plate distally, reducing the risk of construct failure in the contoured region.

Optional: Use the respective sizing templates to choose the appropriate size and length as required (see “Quick Start Guide” on page 11 for sizing template options).

- GT Hook Plate sizing templates can be used to determine the proper plate head size (SMALL vs LARGE). Insert a SMALL or LARGE template (the templates are UNIVERSAL for left and right femurs) with the wire holes distal and choose the proper plate size. (3)
- Proximal Femur Hook Plate sizing templates can be used to determine the proper plate head size (SMALL vs. LARGE) and simplified plate length. Insert a SMALL or LARGE 8-hole template (the templates are UNIVERSAL for left and right femurs). The side notch in the template shaft indicates a 5-hole length, while a 10-hole plate should be used if the template is considered too short. Choose the proper plate size and length accordingly. (4) If needed, a surgical ruler can be used to support plate length definition.

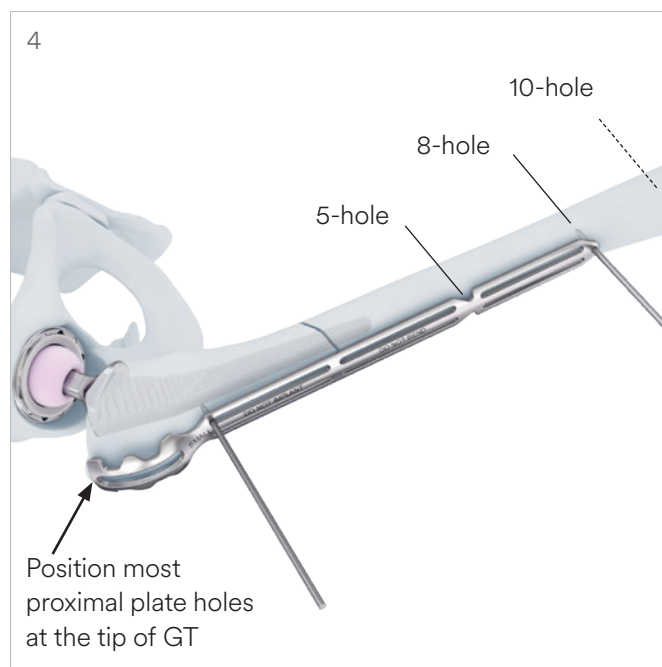
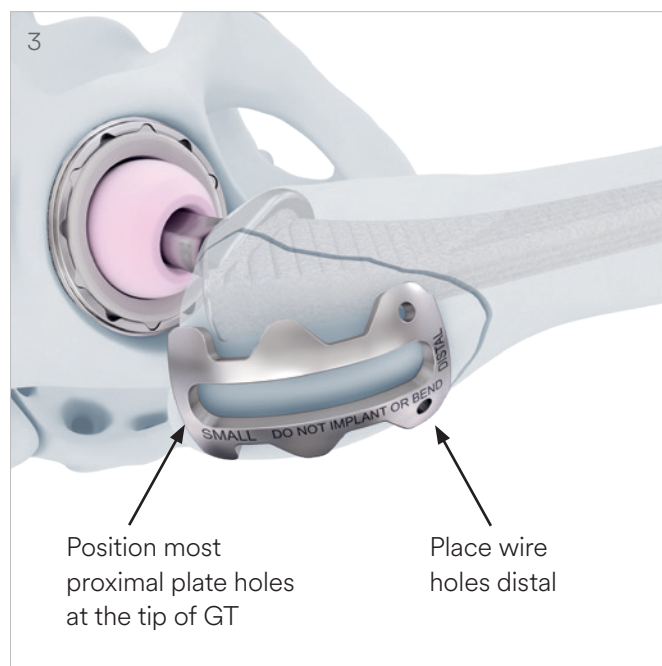
If needed, wires can be used to provisionally fix the sizing template on the bone.

■ Notes:

- If spanning the entire femur, consider distal plate fit, either by using a Distal Femur Spanning Attachment Plate (see “Distal Femur Spanning Attachment Plate Insertion” on page 43) or by bending the Proximal Femur Hook Plate in the distal shaft (see “Contour Plate” on page 32). Ensure that 6 cortices of fixation in the distal fragment are achieved with the Proximal Femur Hook Plate, keeping in mind that two shaft holes will be required to later attach the Distal Femur Spanning Attachment Plate (see Page 43 for additional considerations).
- Consider the total construct length if using a Distal Femur Spanning Attachment Plate.
- Consider adding VA Locking Attachment Plates (VA-LAP) to increase screw density where needed (see “VA Locking Attachment Plate Insertion” on page 38).

▲ WARNING:

The Distal Femur Spanning Attachment Plate can only be used if the distal femur is intact. Do not span a fracture as this could lead to implant failure.



2. Optional: Contour Plate

Instruments

329.300 Plate Bending Press

Plate bending is not recommended as this may weaken the plate and the plate-screw interface. However, there may be cases in which plate bending is clinically necessary. In such cases, plates should be contoured per the instructions below.

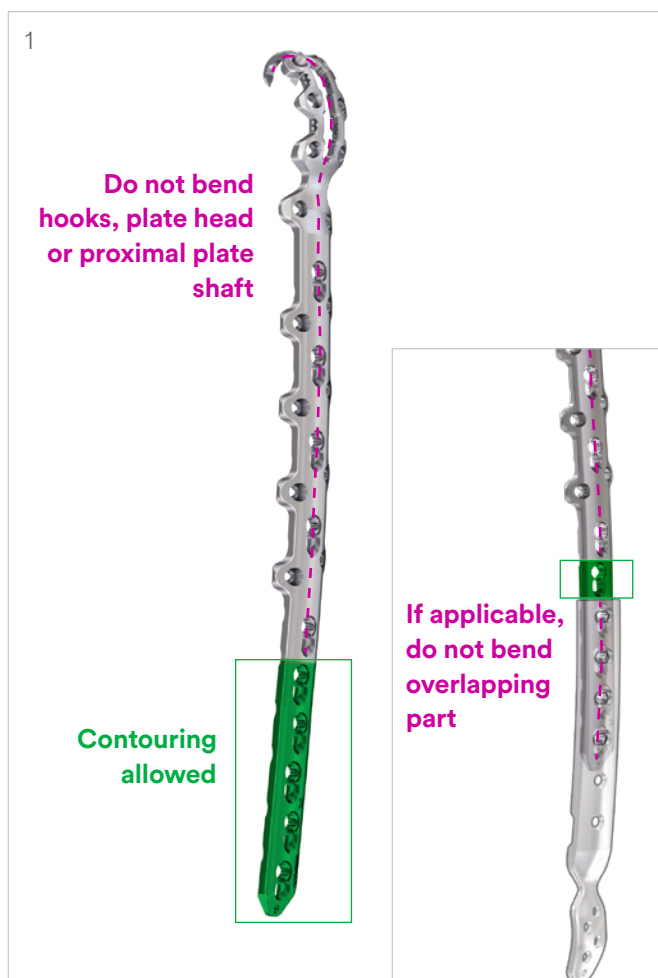
The Proximal Femur Hook Plate should only be contoured in the distal shaft (marked green) in order to fit the anatomy of the distal femur. (1) Bend the plate incrementally between 4.5 mm VA-LCP combi holes using the plate bending press. The most proximal 4.5 mm VA-LCP combi hole in the distal shaft must be filled with a screw to shield the contoured plate distally.

▲ Precautions:

- Do not contour the plate back and forth, as this may weaken the plate.
- Do not bend the plate at the level of the holes, as this may damage the holes.
- Do not bend the hooks, the plate head, or the proximal plate shaft, as this may weaken the plate or damage the hooks or holes.

■ Notes:

- If a Distal Femur Spanning Attachment Plate is planned, do not bend the overlapping part of the distal shaft of the Proximal Femur Hook Plate as this may affect the ability to connect the plates.
- If a Distal Femur Spanning Attachment Plate is planned, consider the alignment of the Proximal Femur Hook Plate to the femur shaft as well as the alignment of the Distal Femur Spanning Attachment Plate to the lateral condyles before bending the Proximal Femur Hook Plate.
- If a VA-LAP is planned, do not bend the plate at that location to ensure fit of the VA-LAP.



3. Insert Plate and Determine Plate Position

Instruments

310.243	2.5 mm Drill Tip Guide Wire, length 200 mm
03.118.020	2.8 mm Compression Wire, length 200 mm (optional)
03.221.250	Insertion Handle for VA-LCP PPFx Proximal Femur Hook Plates

▲ WARNING:

Carefully handle the Proximal Femur Hook Plate and GT Hook Plate as these plates have two sharp hooks that may pinch or tear gloves or skin.

■ Notes:

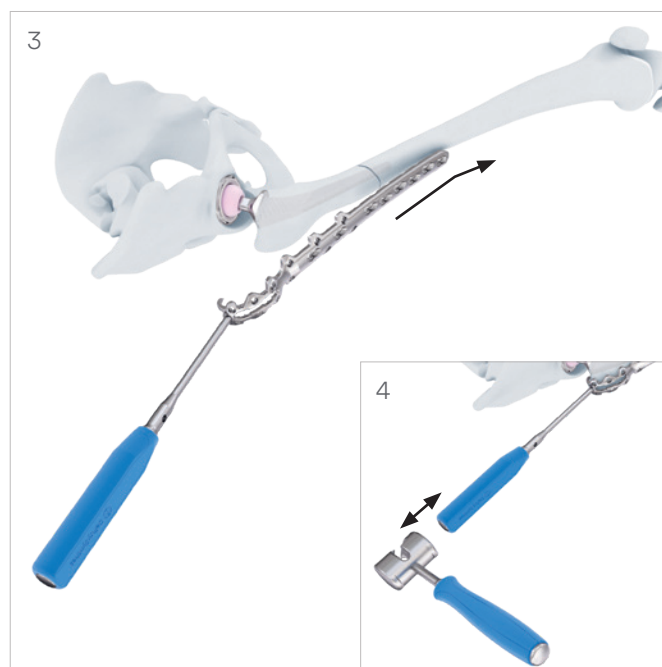
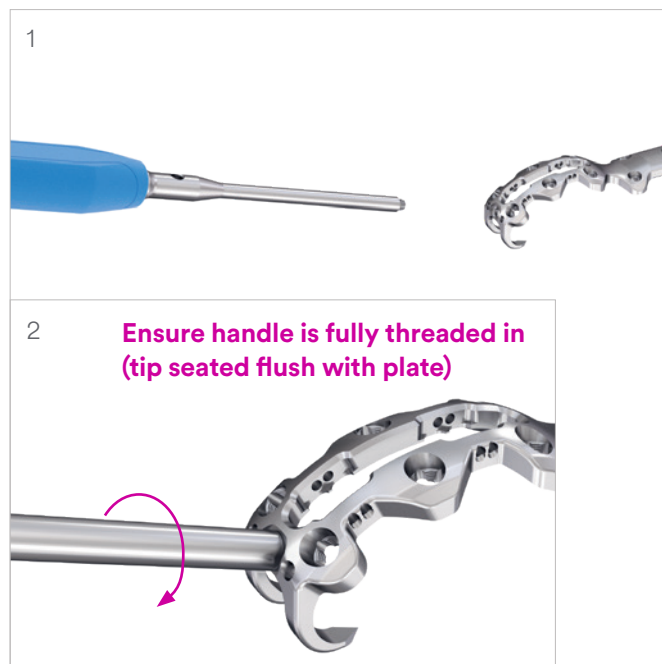
- It is recommended to pre-load cables before plate insertion. Refer to the section on Cable Application for details on when and how to load cables to the Proximal Femur Hook Plate or GT Hook Plate.
- If used, the optional Distal Femur Spanning Attachment Plate and VA-LAP should be added when the main plate is already inserted.

Pre-assemble the insertion handle to the Hook Plate before insertion. (1)

▲ Precaution:

Ensure that the insertion handle is fully threaded in, seating flush with the plate, to prevent damage to the insertion handle or plate during insertion. (2)

Insert the plate proximal to distal, down the length of the bone. (3) Slide the plate distally until the hooks and head of the plate are aligned on the greater trochanter and, for the Proximal Femur Hook Plate, the shaft of the plate is aligned with the shaft of the femur. If needed, use a mallet (e.g. 03.010.522) to tap the insertion handle to fully seat the hooks. (4)



If needed, provisionally fix the plate, for example, by using wires. (5)

■ **Note:**

Wires used to hold the sizing templates do not correlate with wires used for provisional fixation of the plate.

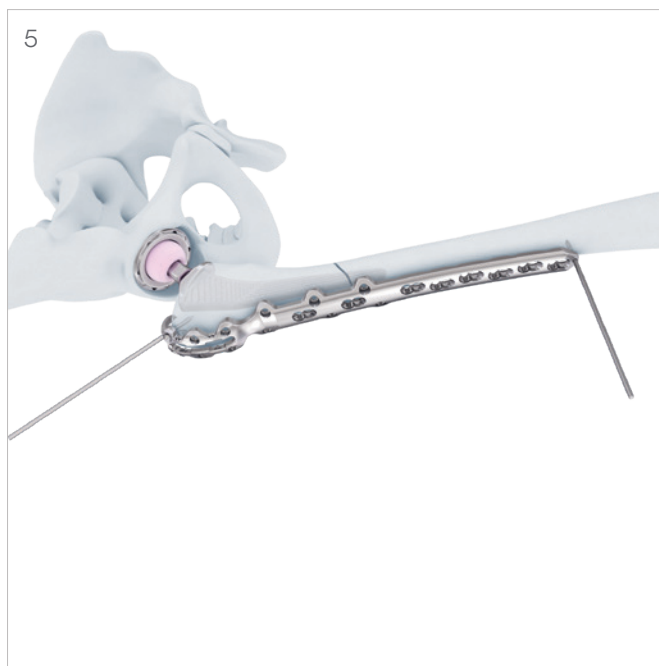
- ⌚ Check implant position under image intensifier control.

▲ **Precaution:**

Consider whether or not a Distal Femur Spanning Attachment Plate is planned as it may affect the final position of the Proximal Femur Hook Plate.

The insertion handle can be removed after insertion of all required screws and cables in the plate head. A cross hole in the shaft of the insertion handle allows for additional removal torque, if required.

Proceed with fixation in the plate head of the Proximal Femur Hook Plate prior to adding screws in the plate shaft. Fixation of the shaft prior to the head may prevent compression of the Type A_G fracture.



4. Attach Cables

Instrument Set

01.221.010	Orthopaedic Cable Instrument Set with Pistol Grip Tensioner and Cable Cutter with Trigger Handle
105.924	Orthopedic Cable System Instrument Set (optional)

Cables can be attached to the hook plate head after the plate is inserted.

▲ WARNINGS:

- For Vancouver Type A_G fracture fixation, it is recommended to use a minimum of two 3.5 mm VA locking screws and two cables in the head of the plate, crossing the fracture/osteotomy, and a minimum of 6 cortices of fixation distal to the fracture in the plate shaft, if applicable. Failure to achieve minimum fixation may result in construct failure or migration of the trochanteric fragment.
- Carefully handle the cable crimps as these have spikes with sharp edges that may pinch or tear gloves or skin.

▲ Precaution:

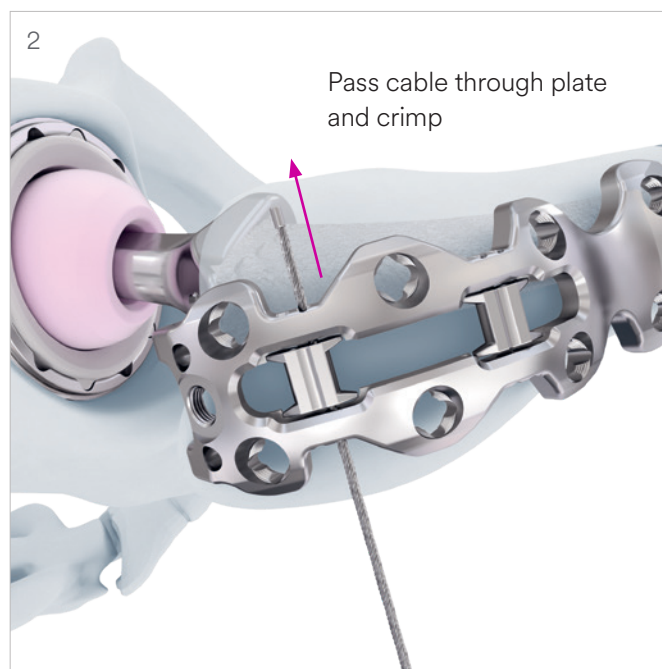
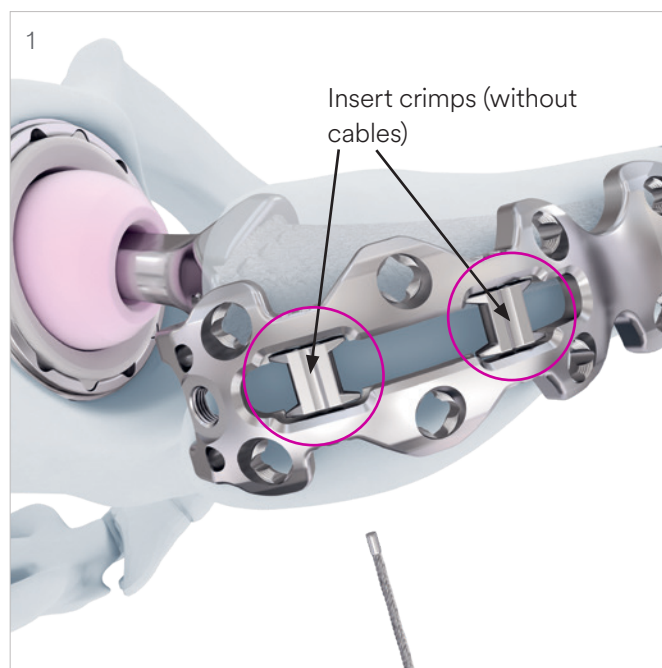
All cables should be added to compress the plate down to the bone and/or reduce the fracture before any locking screws are inserted into the plate. Otherwise, reduction across the fracture may not be sufficiently achieved.

To pre-load the cable (298.801.01S*), remove the crimp from the cable. Seat the crimp into one of the two slots within the plate head with the spikes facing down. (1) If needed, use a forceps to handle the crimp. Feed the taper tip end of the cable through one of the pairs of holes in the plate as well as through the crimp. (2)

■ Note:

Plan the direction from which the cables will be tensioned. Ensure to pass the cables through the plate/ crimp in the desired direction to better facilitate access in the given clinical situation.

Repeat the steps above for the second cable.

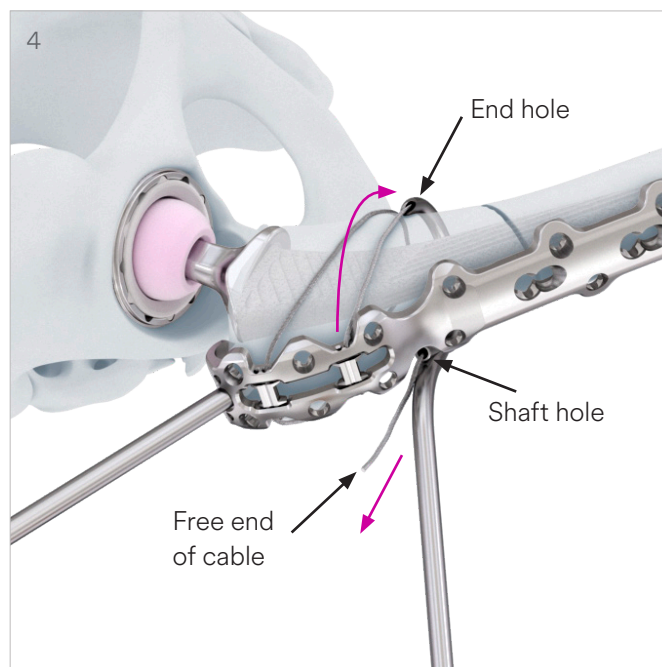
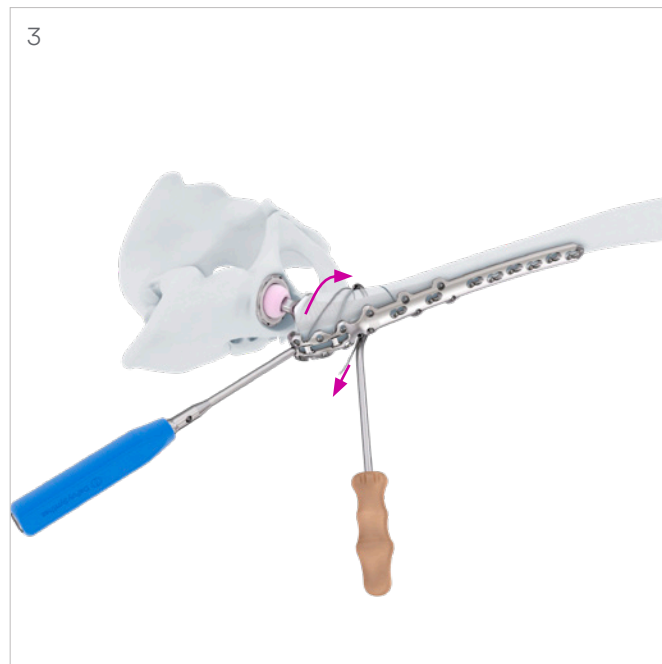


* See Implants overview (page 70) for more information on packaging options.

Pass both cables around the proximal femur and feed them through the open holes in the plate/crimp. (3)

▲ **Precautions:**

- Ensure that cables are not in contact with the prosthesis to prevent loosening or damage of the implants.
- If using a cable passer, feed the cable into the end hole of the cable passer, not the shaft hole. Otherwise, the crimp and plate will prevent release of the cable passer. (4)



Apply adequate tension (20-50kg) on the proximal cable followed by the distal cable. (5)

■ **Note:**

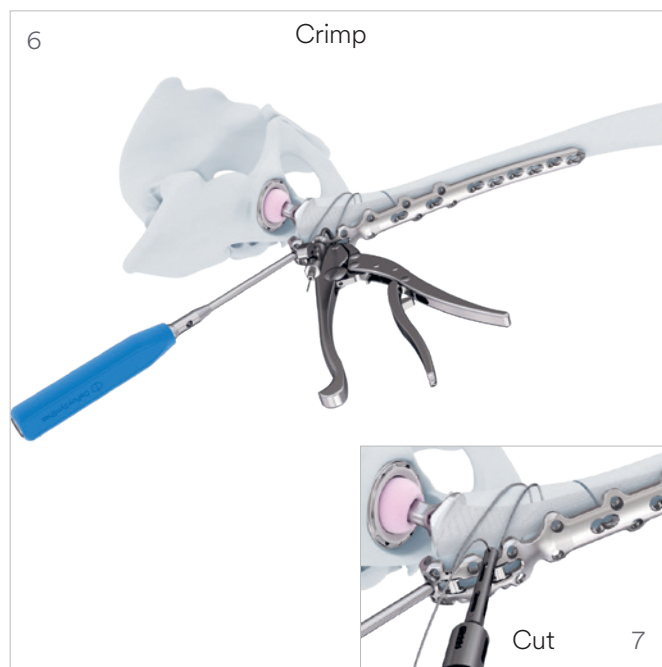
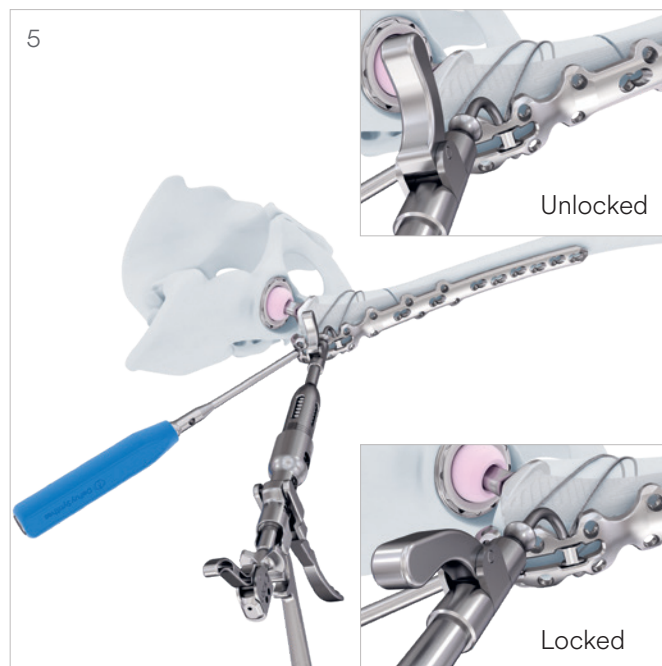
After initial tensioning, re-tension the proximal cable, then re-tension the distal cable to ensure uniform compression across the fracture.

After inserting at least two screws (see screw insertion on page 53 for details on how to drill, measure and insert screws), crimp and cut both the proximal and distal cables. (6, 7)

▲ **Precaution:**

Each cable should be cut as close to the plate as possible, taking care not to damage the adjacent cable.

For further information on passing, tensioning, crimping, and cutting cables, please refer to the DePuy Synthes Orthopedic Cable System Surgical Technique.



Optional:
VA Locking Attachment Plate Insertion



1. Determine Location

Determine the location of the VA-LAP.

■ Notes:

- The VA-LAP can be placed at any empty 4.5 mm VA-LCP combi hole of the main plate, to allow for connecting screw insertion.
- Multiple VA-LAPs can be added to achieve the required construct, however they cannot be at adjacent 4.5 mm VA-LCP combi holes due to size limitations.
- If a VA-LAP is planned, do not bend the main plate at that location to ensure fit of the VA-LAP.

▲ WARNING:

It is recommended to place 3.5 mm VA locking screws diagonally opposed in only two of the four screw holes to achieve best fixation and to prevent a stress riser in the bone. (1)



2. Attach Threaded Insert of Connecting Screw

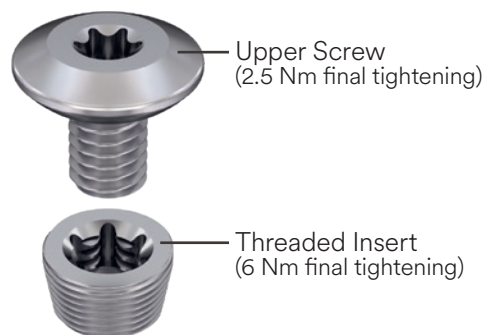
Instruments

03.231.013	T-Handle with Torque Limiting Function, 6 Nm
03.231.015	Screwdriver Shaft Stardrive®, T25, length 180 mm, for Hexagonal Coupling 6.0 mm

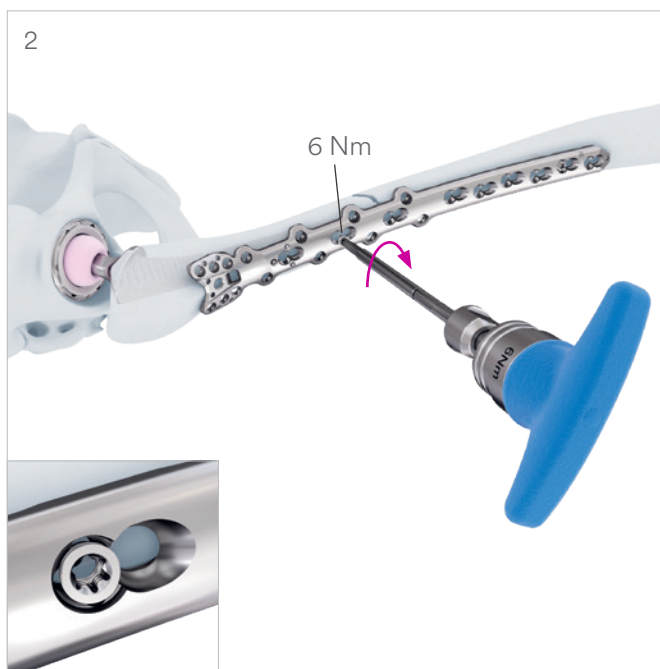
The connecting screw for the VA-LAP (02.120.606*) consists of two parts: The upper screw and the threaded insert. (1) Screw the threaded insert into the VA locking portion of the 4.5 mm VA-LCP combi hole, using the screwdriver shaft, together with the **6 Nm torque limiting handle**. (2)

1

Connecting Screw
consisting of:



2



* See Implants overview (page 70) for more information on packaging options.

3. Insert and Attach VA-LAP

Instruments

03.127.016	2.5 Nm Torque Limiting Handle with Quick Coupling
03.113.019	Screwdriver Shaft 3.5 Stardrive, T15, long, self-holding, for AO/ASIF Quick Coupling

▲ Precaution:

Ensure that the connecting screw insert is tightened with the **6 Nm Torque Limiting Handle** before inserting the VA-LAP. After VA-LAP insertion, the insert cannot be tightened anymore.

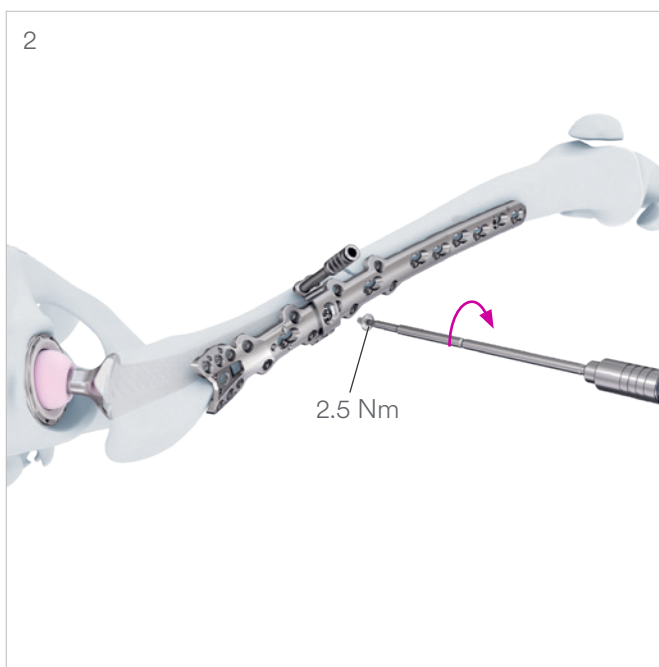
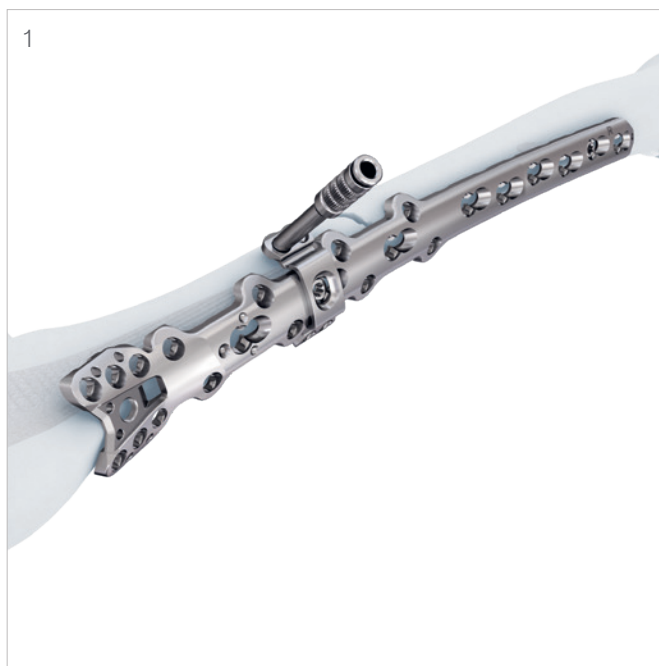
Position the VA-LAP on the plate directly above the threaded insert which was previously inserted. (1)

Attach the VA-LAP to the plate by threading the upper screw of the connecting screw into the previously inserted threaded insert in the underlying plate, using the screwdriver shaft with the **2.5 Nm torque limiting handle**. (2)

▲ Precaution:

Final tightening must always be done manually using the appropriate torque limiting handle (2.5 Nm for upper screw of the connecting screw and 6 Nm for the connecting screw insert) and screwdriver shaft to ensure secure locking and prevent construct failure. The torque limiting handles should not be used for screw removal as this may damage the instrument.

- 🕒 Check implant position under image intensifier control.



4. Optional: Contour Tabs of VA-LAP

Instruments

03.221.251 Bending Driver

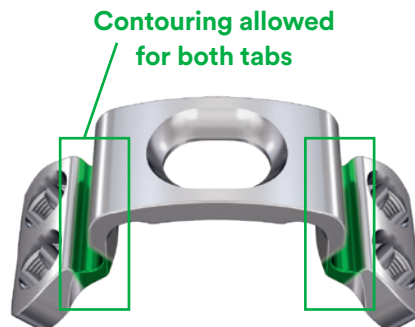
The tabs (marked green) can be contoured in-situ to fit the anatomy of the femoral shaft or to ensure a secure drill path, for example to avoid the hip stem. (1) With the VA-LAP already attached to the underlying plate, insert two bending drivers into opposing holes and contour the tabs. (2) While bending, consider sensitive soft tissue below the tabs.

▲ Precaution:

Do not contour the tabs back and forth, as this may weaken the tabs.

See screw insertion on page 53 for details on how to drill, measure and insert screws.

1



2



Optional: Distal Femur Spanning Attachment Plate Insertion



1. Determine Length

Instruments

310.243	2.5 mm Drill Tip Guide Wire, length 200 mm
03.118.020	2.8 mm Compression Wire, length 200 mm (optional)
03.221.150 – 03.221.155	Sizing Template for VA-Locking PPFx Distal Femur Spanning Attachment Plates
03.221.253	Connecting Screw for Sizing Templates for VA-Locking PPFx Distal Femur Spanning Attachment Plates

▲ WARNING:

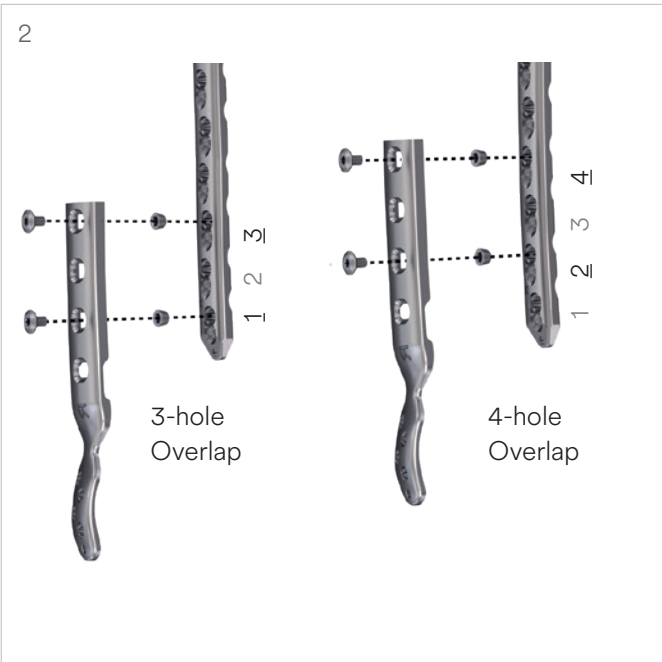
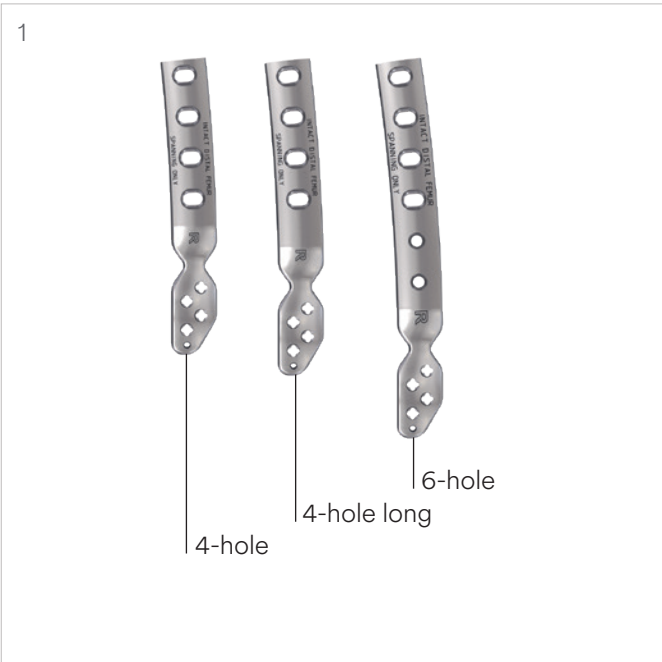
The Distal Femur Spanning Attachment Plate can only be used if the distal femur is intact. Do not span a fracture as this could lead to implant failure.

Determine the length of Distal Femur Spanning Attachment Plate to be used (1; see also “Quick Start Guide” on page 12 for available lengths).

▲ Precautions:

- The Distal Femur Spanning Attachment Plate must overlap the main plate by either **three holes** or **four holes**, or the connection between the plates may be unstable which may lead to construct failure.
- **Two connecting screws** are required to attach the Distal Femur Spanning Attachment Plate to **two non-adjacent holes** of the main plate, or the connection between the plates may be unstable which may lead to construct failure.

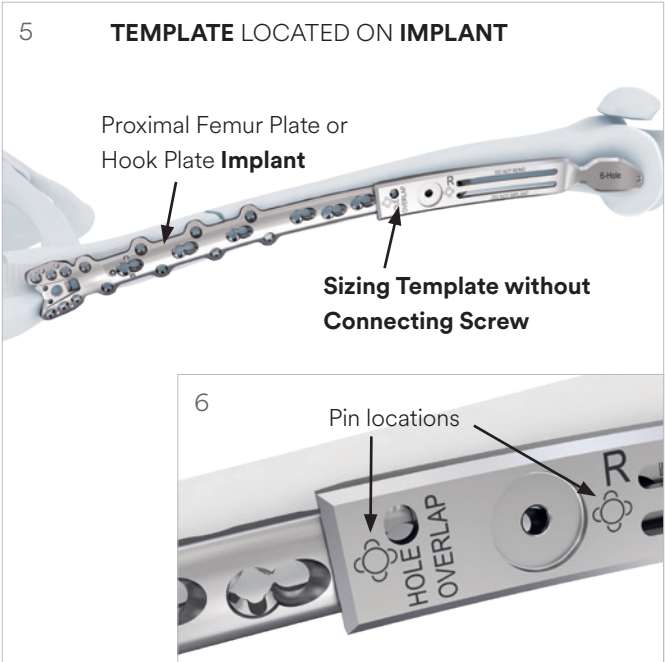
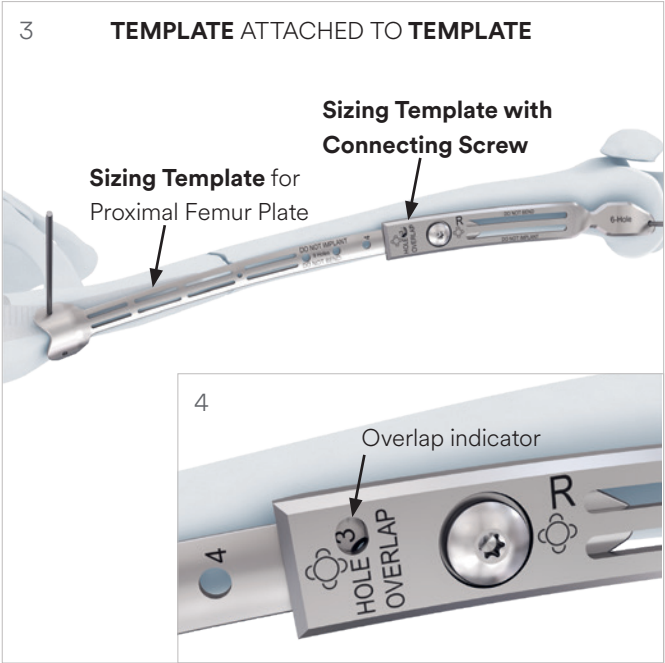
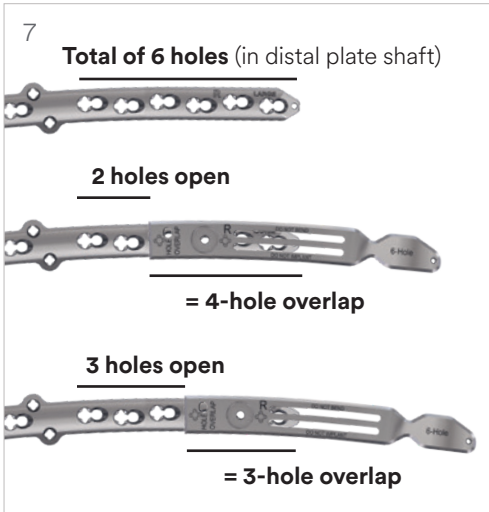
Careful planning of construct screw positioning is required to make sure that the required 4.5 mm VA-LCP combi holes of the main plate are empty, to allow a secure connection of the Distal Femur Spanning Attachment Plate while ensuring adequate fixation of the main plate.



Optional: Use the sizing templates for the Distal Femur Spanning Attachment Plate to choose the appropriate length as required.

Template attached to Template: The Distal Femur Spanning Attachment Plate sizing templates can be attached to the Proximal Femur Plate sizing templates, by using the template connecting screw. (3) A window in the Distal Femur Spanning Attachment Plate sizing template indicates the suggested screw hole overlap of either 3-holes or 4-holes. (4)

Template located on Implant: Alternatively, the Distal Femur Spanning Attachment Plate sizing template can be placed temporarily over the actual Proximal Femur Plate or Proximal Femur Hook Plate implants to confirm plate selection. (5) Two pins on the underside of the sizing template will fit into the threaded portion of the 4.5 mm VA-LCP combi holes in the plate shaft. The pin locations are etched on the top surface of the sizing template. (6) The suggested screw hole overlap can be calculated with the remaining open holes in the distal plate shaft. (7)

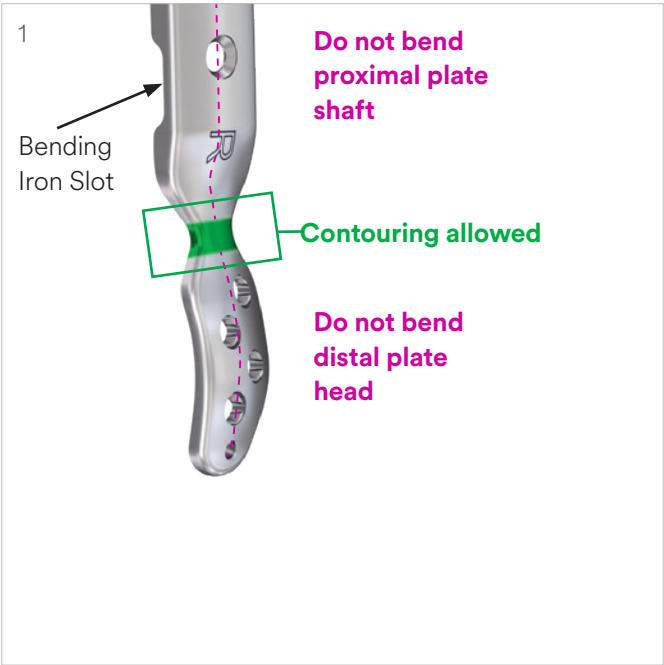


2. Optional: Contour Plate

Instruments	
329.300	Plate Bending Press
329.020	Bending Iron

The Distal Femur Spanning Attachment Plate should only be bent at the distal bending notch (marked green) to fit the anatomy of the distal femur. (1) Bend and/or twist the plate incrementally and at the predefined location (distal bending notch) using a single bending iron through the bending iron slot while holding the anatomically shaped head of the Distal Femur Spanning Attachment Plate with the anvil of the plate bending press. (2)

- ▲ **Precautions:**
- Do not contour the plate back and forth, as this may weaken the plate.
 - Do not bend the Distal Femur Spanning Attachment Plate in any area other than across the predefined location (bending notch). Bending the proximal plate shaft may impact the ability to connect the Distal Femur Spanning Attachment Plate to the main plate. Bending the distal plate head may damage the holes.



3. Attach Threaded Inserts of Connecting Screw

Instruments

03.231.013	T-Handle with Torque Limiting Function, 6 Nm
03.231.015	Screwdriver Shaft Stardrive®, T25, length 180 mm, for Hexagonal Coupling 6.0 mm

The Distal Femur Spanning Attachment Plate requires two connecting screws (02.120.606*) to secure it to the main plate. The two connecting screws should not be in adjacent holes; there should be at least one 4.5 mm VA-LCP combi hole between the two connecting screws. Each of the connecting screws consists of two parts: the upper screw and the threaded insert. (1) Screw each threaded insert into the VA locking portion of a 4.5 mm VA-LCP combi hole, using the screwdriver shaft, together with the **6 Nm torque limiting handle**. (2)

▲ Precautions:

- The Distal Femur Spanning Attachment Plate must overlap the main plate by either **three holes or four holes**, or the connection between the plates may be unstable which may lead to construct failure.
- **Two connecting screws** are required to attach the Distal Femur Spanning Attachment Plate to **two non-adjacent holes** of the main plate, or the connection between the plates may be unstable which may lead to construct failure.

■ Note:

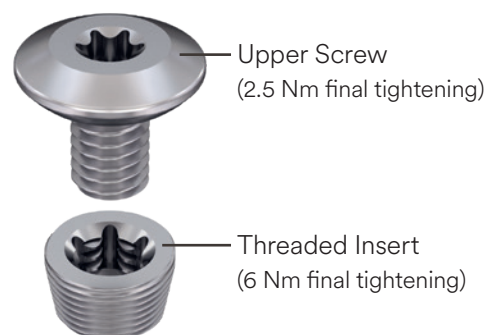
Depending on the overlap, either one or two 4.5 mm VA-LCP combi holes will be open in the main plate underneath the Distal Femur Spanning Attachment Plate.

- These holes can be filled with a 5.0 mm VA locking screw before attaching the Distal Femur Spanning Attachment Plate.
- 4.5 mm cortex screws cannot be placed underneath the Distal Femur Spanning Attachment Plate but can be placed on top of it (see notes on page 49).

1

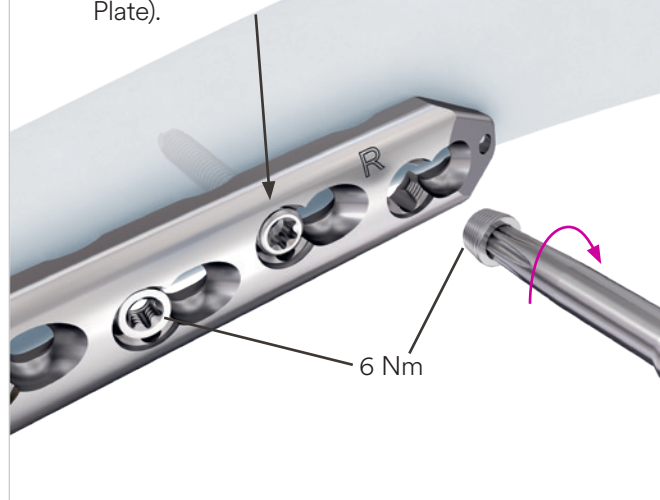
Connecting Screw

consisting of:



2

Open holes can be filled with Locking Screws before Distal Femur Spanning Attachment Plate is attached (Cortex Screws cannot be placed underneath Distal Femur Spanning Attachment Plate).



* See Implants overview (page 70) for more information on packaging options.

4. Insert and Attach the Distal Femur Spanning Attachment Plate

Instruments

03.127.016	2.5 Nm Torque Limiting Handle with Quick Coupling
03.113.019	Screwdriver Shaft 3.5 Stardrive, T15, long, self-holding, for AO/ASIF Quick Coupling

▲ Precautions:

- Ensure that the inserts for both connecting screws are tightened with the **6 Nm Torque Limiting Handle** before inserting the Distal Femur Spanning Attachment Plate. After insertion of the upper screws, the inserts cannot be tightened anymore.
- Ensure to replace the Distal Femur Spanning Attachment Plate sizing template (and template connecting screw, if used) with the actual Distal Femur Spanning Attachment Plate implant.

Position the Distal Femur Spanning Attachment Plate on the plate directly above the threaded inserts which were previously inserted. (1)

Provisionally insert the first upper screw of the connecting screw into one of the two previously inserted threaded inserts in the underlying plate, without final tightening.

Insert the second upper screw into the second previously inserted threaded insert.

- ① Check implant position under image intensifier control.



Tighten both upper screws, using the screwdriver shaft with the **2.5 Nm torque limiting handle**. (2)

▲ **Precaution:**

Final tightening must always be done manually using the appropriate torque limiting handle (2.5 Nm for upper screw of the connecting screw and 6 Nm for the connecting screw insert) and screwdriver shaft to ensure secure locking and prevent construct failure. The torque limiting handles should not be used for screw removal as this may damage the instrument.

- ⓘ Reconfirm implant position under image intensifier control.

■ **Notes:**

- Additional 4.5 mm cortex screws can be inserted through any of the open holes in the Distal Femur Spanning Attachment Plate, e.g. to compress the plate construct down to the bone.
- All cortex screws must be inserted **perpendicular** to the Distal Femur Spanning Attachment Plate. Other insertion angles may limit the contact between the screw head and hole.

▲ **Precautions:**

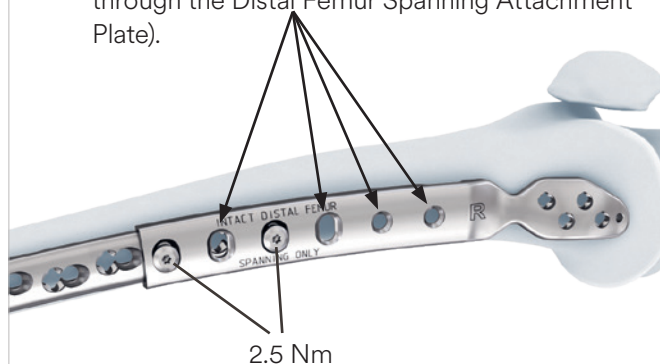
- All cortex screws must be inserted before insertion of any variable angle locking screws, if in the same fragment. Placing locking screws before cortex screws may limit compression of the plate to bone and prevent reduction across the fracture.
- For the Distal Femur Spanning Attachment Plate, it is recommended to place a minimum of three 3.5 mm VA locking screws in the condylar section of the plate, or construct failure or loss of bony fixation may occur. (3)

▲ **WARNING:**

Screws through the Distal Femur Spanning Attachment Plate alone and not through the main plate **cannot** be used to achieve sufficient fixation in the distal fragment. Use of this plate for fracture fixation may lead to construct failure.

See screw insertion on page 53 for details on how to drill, measure and insert screws.

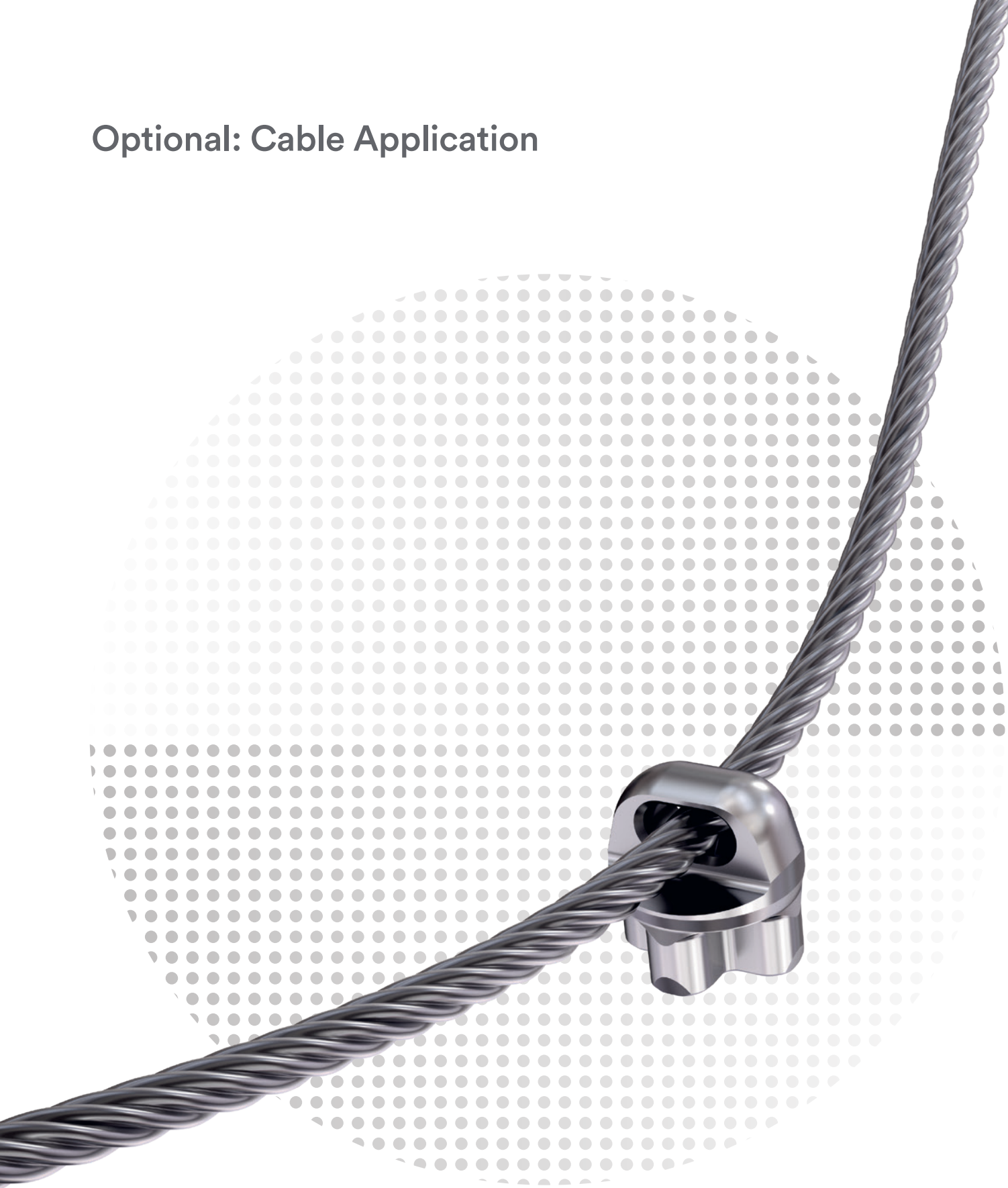
- 2 Open holes can be filled with Cortex Screws after Distal Femur Spanning Attachment Plate is attached (Locking Screws cannot be placed through the Distal Femur Spanning Attachment Plate).



3



Optional: Cable Application



1.7 mm Cable and VA Positioning Pin shown

For instructions on cable application in the head of a Hook Plate, refer to “Attach Cables” on page 35.

Additional cables can be added to the plate construct.

1. Insert Variable Angle Positioning Pins

It is recommended to use 5.0 mm Variable Angle Positioning Pins (02.231.022S) if the cable is passed over the plate/screw construct. (1)

▲ Precaution:

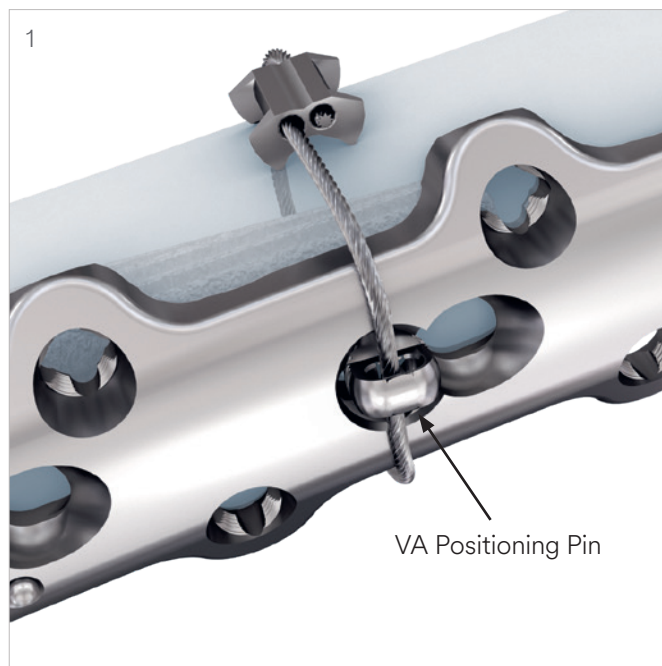
When using cables in conjunction with a plate/screw construct, all cables should be added to compress the plate down to the bone and/or reduce the fracture before any locking screws are inserted into the plate. Otherwise, reduction across the fracture may not be sufficiently achieved.

5.0 mm Variable Angle Positioning Pins may be used in any 5.0 mm variable angle locking hole, including the locking portion of the 4.5 mm VA-LCP combi holes.

■ Notes:

- The hole in the positioning pin should be oriented to the side of the plate to allow cable passage.
- The use of a forceps may help to hold the pin when placing it in the plate hole.
- Ensure to load the positioning pin onto the cable before passing the cable around the bone.

For further information on using positioning pins, please refer to the DePuy Synthes Variable Angle Positioning Pins Surgical Technique.



2. Insert Cerclage Buttons

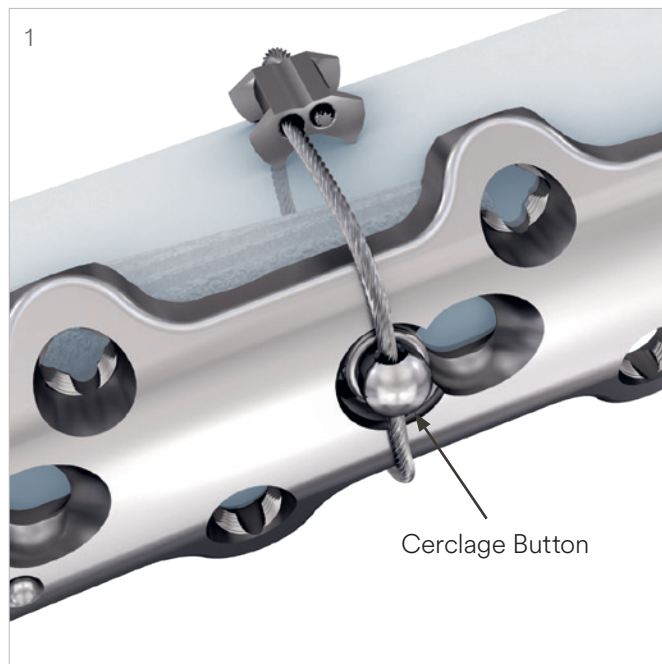
Alternatively, cerclage buttons can be used if the cable is passed over the plate/screw construct. (1)

Cerclage buttons fit into the screwhead recess to provide fixation when a screw may not have adequate purchase.

■ Notes:

- Two sizes are available to fit into existing screws:
 - Small size to fit 2.5 mm hex or T15 screwhead recess
 - Large size to fit 3.5 mm hex or T25 screwhead recess
- Cerclage buttons may be used with unicortical screws to provide additional fixation in the presence of a prosthesis.

For further information on using cerclage buttons, please refer to the DePuy Synthes Orthopedic Cable System Surgical Technique.



Screw Insertion



3.5 mm VA Locking Screw shown

1. Determine Screw Locations and Type

- ❶ Confirm implant position under image intensifier control and consider any optional attachment plates before inserting screws.

▲ Precautions:

- When using cables in conjunction with a plate/screw construct, all cables should be added to compress the plate down to the bone and/or reduce the fracture before any locking screws are inserted into the plate. Otherwise, reduction across the fracture may not be sufficiently achieved.
- All cortex screws must be inserted before insertion of any variable angle locking screws, if in the same fragment. Placing locking screws before cortex screws may limit compression of the plate to bone and prevent reduction across the fracture.

Taking all clinical factors into account, determine screw locations and screw type to achieve the required stability.

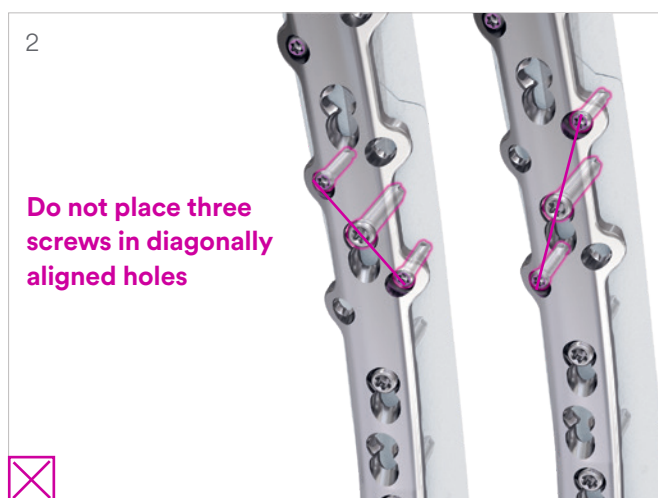
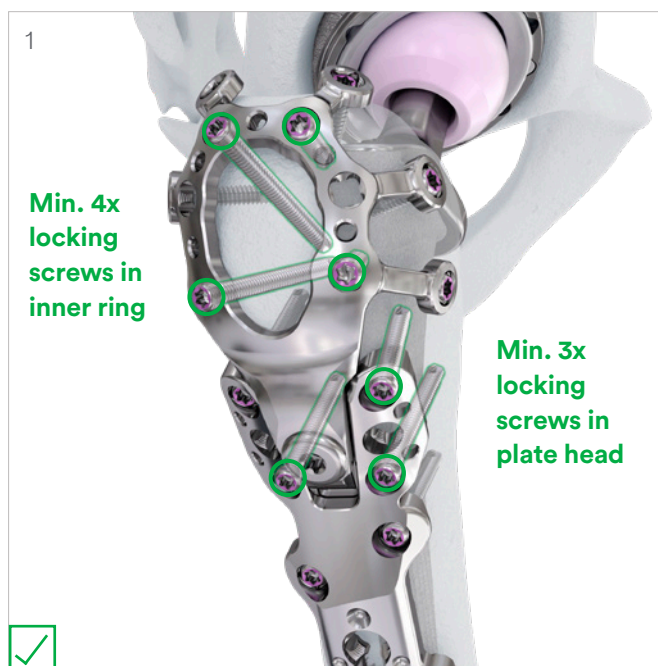
■ Notes for Screw Type:

- It is recommended to only insert 3.5 mm VA locking screws in the 3.5 mm variable angle locking holes. 3.5 mm cortex screws are also compatible with the 3.5 mm VA locking holes, but should only be used for fracture reduction or to compress the plate down to the bone.
- The 4.5 mm VA-LCP combi holes in the Proximal Femur Plate and Proximal Femur Hook Plate accept either 5.0 mm variable angle locking screws or 4.5 mm cortex screws.

▲ WARNINGS:

The minimum fixation requirements for the Proximal Femur Plate with or without GT Ring Attachment Plate listed below are based on the results of mechanical testing performed on the unique plate constructs and are important to ensure construct stability. Failure to achieve fixation recommendations increase the risk of construct failure, malalignment, and/or delayed bone healing.

- For Vancouver Type A_G fractures where a GT Ring Attachment Plate is used:
 - It is recommended to use a minimum of three 3.5 mm VA locking screws in the head region of the Proximal Femur Plate and a minimum of four 3.5 mm VA locking screws in the inner ring of the GT Ring Attachment Plate, while additional screws in the arms are optional. Failure to place sufficient screws may stress the connecting screw and lead to construct failure or loss of bony fixation. (1)
 - A minimum of 6 cortices of fixation should be used distal to the fracture in the head/shaft regions of the Proximal Femur Plate, as fewer cortices of fixation may result in construct failure or loss of bony fixation.
- For Vancouver Type B fracture fixation, it is recommended to add screws to achieve sufficient mechanical fixation, e.g. by adding bicortical or unicortical screws that cover at least 6 cortices of fixation in the proximal fragment and 6 cortices of fixation in the distal fragment. Fewer cortices of fixation may result in construct failure or loss of bony fixation.
 - If adding a Distal Femur Spanning Attachment Plate, see page 57 for additional considerations.
- For the proximal plate shaft, it is not recommended to place three screws in diagonally aligned holes. Doing so could potentially cause a stress riser in the bone. (2)
- If the distal shaft of the Proximal Femur Plate is contoured, then the most proximal 4.5 mm VA-LCP combi hole in the distal shaft must be filled with either a 5.0 mm VA locking screw or a 4.5 mm cortex screw to shield the contoured plate distally, reducing the risk of construct failure in the contoured region.



▲ WARNINGS:

The minimum fixation requirements for the Proximal Femur Hook Plate and the GT Hook Plate listed below are based on the results of mechanical testing performed on the unique plate constructs and are important to ensure construct stability. Failure to achieve fixation recommendations increase the risk of construct failure, malalignment, and/or delayed bone healing.

- For the Hook Plates, if used for Vancouver Type A_G fractures, it is recommended to use a minimum of two 3.5 mm VA locking screws and two cables (see “Attach Cables” on page 35) in the head of the plate, crossing the fracture/osteotomy, and a minimum of 6 cortices of fixation distal to the fracture in the plate shaft, if applicable. Failure to achieve minimum fixation may result in construct failure or migration of the trochanteric fragment. (3)
- For Vancouver Type B fracture fixation, it is recommended to add screws to achieve sufficient mechanical fixation, e.g. by adding bicortical or unicortical screws that cover at least 6 cortices of fixation in the proximal fragment and 6 cortices of fixation in the distal fragment. Fewer cortices of fixation may result in construct failure or loss of bony fixation.
 - If adding a Distal Femur Spanning Attachment Plate, see page 57 for additional considerations.
- For the proximal plate shaft, it is not recommended to place three screws in diagonally aligned holes. Doing so could potentially cause a stress riser in the bone. (4)
- If the distal shaft of the Proximal Femur Hook Plate is contoured, then the most proximal 4.5 mm VA-LCP combi hole in the distal shaft must be filled with either a 5.0 mm VA locking screw or a 4.5 mm cortex screw to shield the contoured plate distally, reducing the risk of construct failure in the contoured region.

3

Min. 2x locking screws crossing fracture and 2x cables through head of plate



4

Do not place three screws in diagonally aligned holes



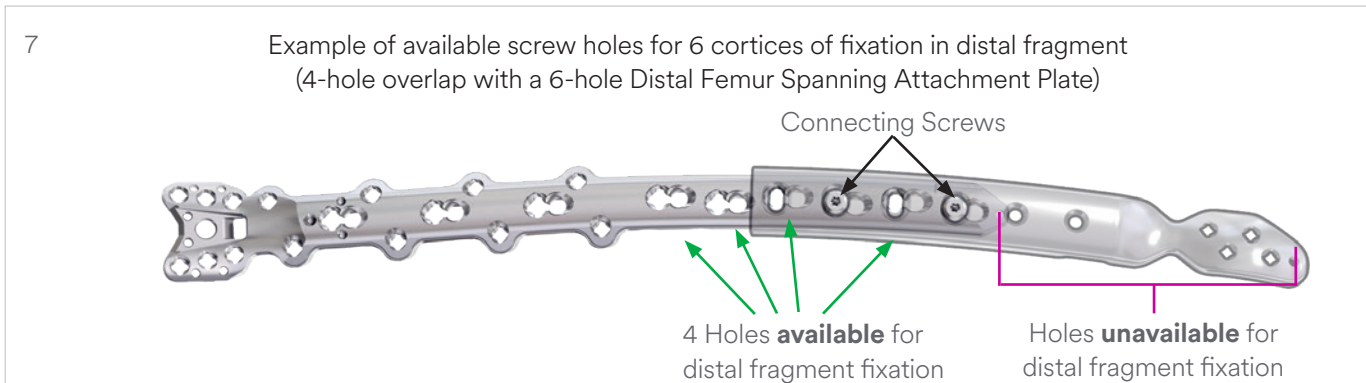
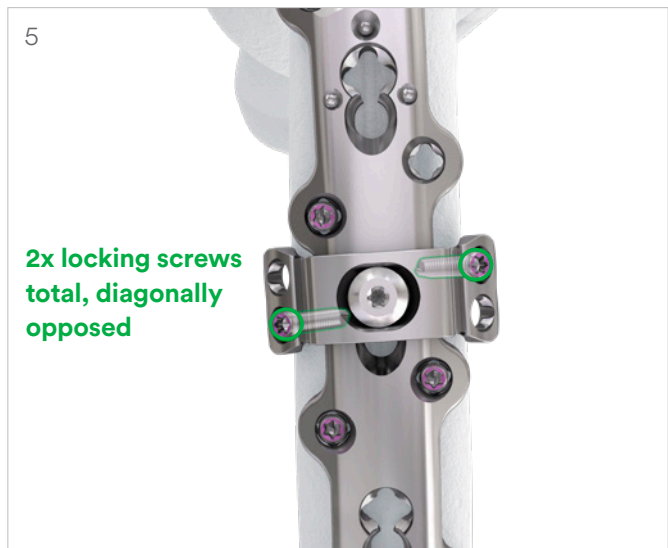
▲ WARNINGS:

The minimum fixation requirements for the VA-LAP and the Distal Femur Spanning Attachment Plate listed below are based on the results of mechanical testing performed on the unique plate constructs and are important to ensure construct stability. Failure to achieve fixation recommendations increase the risk of construct failure, malalignment, and/or delayed bone healing.

- For the VA-LAP, it is recommended to place 3.5 mm VA locking screws diagonally opposed, in only two of the four screw holes to achieve best fixation and to prevent a stress riser in the bone. (5)
- Screws through the Distal Femur Spanning Attachment Plate alone and not through the main plate **cannot** be used to achieve sufficient fixation in the distal fragment. Use of this plate for fracture fixation may lead to construct failure. (7)

▲ Precaution:

For the Distal Femur Spanning Attachment Plate, it is recommended to place a minimum of three 3.5 mm VA locking screws in the condylar section of the plate, or construct failure or loss of bony fixation may occur. (6)



Repeat steps 2 to 4 to insert the required amount of 3.5 mm and 4.5 mm Cortex Screws.
Alternatively, directly proceed to steps 5 to 7 to insert the required amount of 3.5 mm and 5.0 mm Variable Angle Locking Screws.

2. Drill for Cortex Screw

Instruments for 3.5 mm Cortex Screws*	
03.133.104	Drill Bit 2.5 mm, Quick Coupling, length 240 mm, calibration 150 mm
03.133.002	3.5 mm Non-Locking Drill Guide
03.133.001	3.5 mm Neutral Sleeve Adapter
Instruments for 4.5 mm Cortex Screws*	
315.930	3.2 mm Drill Bit, calibrated, length 230/205 mm, 3-flute, for Quick Coupling
310.310	3.2 mm Drill Bit, 145 mm, for Quick Coupling (optional)
323.460	4.5 mm Universal Drill Guide

▲ **Precaution:**
Ensure a secure drill path (e. g. avoiding the hip stem, screws or wires used for provisional fixation) to prevent damage to implants or instruments.

Use the drill bit through the drill guide to predrill the bone. (1; image shows 4.5 mm instruments)

Remove the drill bit and drill guide.



* Suggested instruments – other comparable instruments for 3.5 mm and 4.5 mm Cortex Screw insertion can be used alternatively.

3. Measure for Cortex Screw Length

Instruments for 3.5 mm Cortex Screws*

319.090	Depth Gauge, measuring range up to 110 mm
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Instruments for 4.5 mm Cortex Screws*

319.090	Depth Gauge, measuring range up to 110 mm
---------	---

Measure for screw length using the depth gauge.
(1; image shows 4.5 mm measurement)



* Suggested instruments – other comparable instruments for 3.5 mm and 4.5 mm Cortex Screw insertion can be used alternatively.

4. Insert Cortex Screw

Instruments for 3.5 mm Cortex Screws*

03.133.150	Handle/large with Quick Coupling
03.113.019	Screwdriver Shaft 3.5 Stardrive, T15, long, self-holding, for AO/ASIF Quick Coupling
03.133.175	2.5 mm Hex Driver Shaft, Self-Retaining Length 100 mm with Quick Coupling (optional)

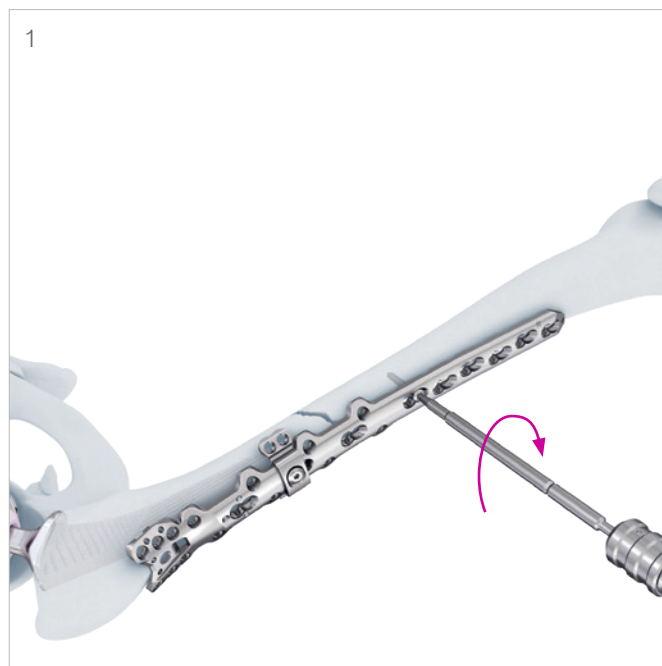
Instruments for 4.5 mm Cortex Screws*

03.010.516	Handle/large with Quick Coupling
03.010.151	Star / HexDrive Screwdriver Shaft, T25 / 3.5 mm hex

▲ Precaution:

Ensure a secure path for screw insertion (e.g. avoiding the hip stem, screws or wires used for provisional fixation) to prevent damage to implants or instruments.

Select and insert the required length cortex screw using the screwdriver shaft with the appropriate handle. (1; image shows 4.5 mm instruments)



* Suggested instruments – other comparable instruments for 3.5 mm and 4.5 mm Cortex Screw insertion can be used alternatively.

Repeat steps 5 to 7 to insert the required amount of 3.5 mm and 5.0 mm Variable Angle Locking Screws (incl. 5.0 mm VA PPFx Locking Screws).

5. Drill for VA Locking Screw

Instruments for 3.5 mm Variable Angle Locking Screws*

03.133.108	Drill Bit 2.8 mm, Quick Coupling, length 200 mm, Calibration 110 mm
03.133.003	3.5 mm Variable Angle Drill Guide
03.133.004	2.8 mm Threaded Guide for 3.5 mm Screw, VA® and LCP®

Instruments for 5.0 mm Variable Angle Locking Screws*

310.431	4.3 mm Drill Bit, 180 mm, quick coupling
03.122.040	VA Double Drill Sleeve, 4.3 mm

Variable angle holes allow either drilling at 0° / on-axis or up to 15° off-axis in each direction:

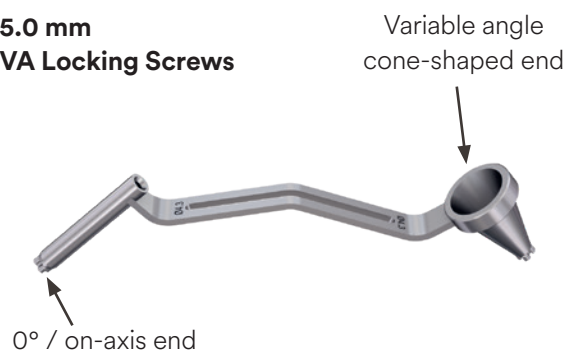
For **3.5 mm VA Locking Screws** (1): Both the variable angle spherical tip as well as the cone-shaped end of the drill guide allow drilling at a desired angle compared to the nominal angle of the locking hole. When using the spherical tip end, gently press the instrument into the variable angle hole. The lip portion of the spherical tip end engages with the cloverleaf portion of the hole to provide tactile feedback of the angulations. Continue to provide light pressure while holding the drill guide at the desired angle. The spherical tip end of the drill guide provides freedom to choose angulation. To ensure a precise 15° angulation, use the cone-shaped end of the drill guide. A separate threaded guide can be used to ensure that the drill bit follows the 0° axis of the variable angle locking hole.



* Suggested instruments – other comparable instruments for 3.5 mm and 5.0 mm Variable Angle Locking Screw insertion can be used alternatively.

For **5.0 mm VA Locking Screws (2)**: The 0° / on-axis end of the drill guide ensures that the drill bit follows the 0° axis of the variable angle locking hole while the cone-shaped end of the drill guide allows drilling at a desired angle compared to nominal angle of the locking hole. Both ends of the drill guide insert coaxially into the variable angle locking hole and the tip keys into the cloverleaf design of the hole.

2

**5.0 mm
VA Locking Screws**

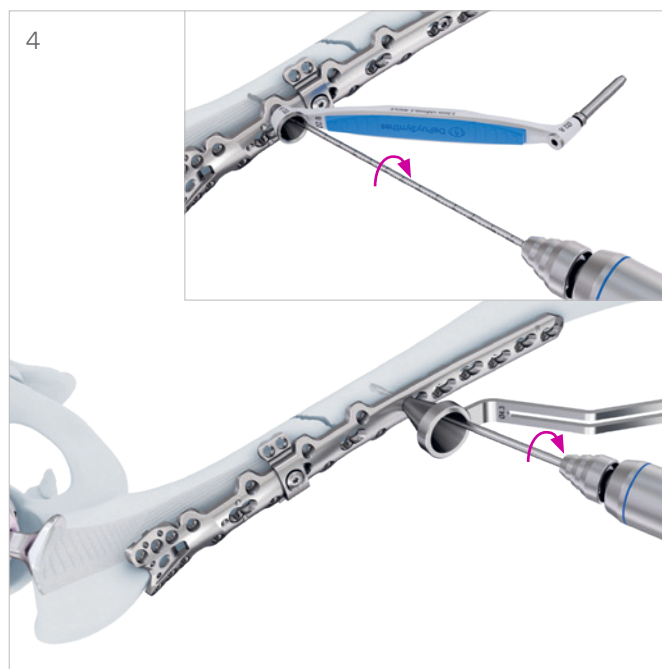
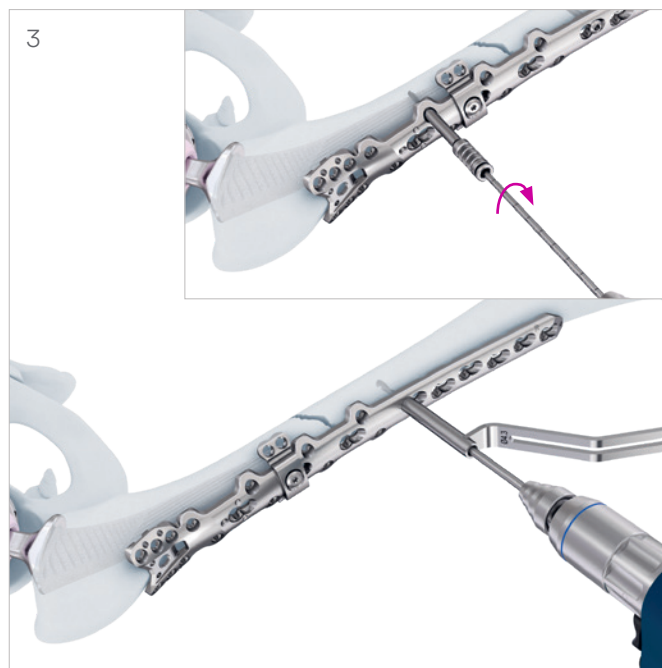
■ Notes:

- Placing screws on-axis with the screw hole (zero degrees) provides maximum locking strength of the connection of the screw to the plate. Choose off-axis angles only when clinically required.
- When drilling, the tip of the drill guide should remain fully seated in the hole.

▲ Precautions:

- Ensure a secure drill path (e.g. avoiding the hip stem, screws or wires used for preliminary fixation) to prevent damage to implants or instruments.
- Drill guides or drill sleeves must be used for VA locking screw hole preparation to ensure proper locking of VA locking screws to plate.

Insert the drill bit through the drill guide to drill the bone, either at the nominal angle (3; large image shows 5.0 mm instruments and small image shows 3.5 mm instruments) or at a desired angle compared to nominal angle (4; large image shows 5.0 mm instruments and small image shows 3.5 mm instruments).



6. Measure for VA Locking Screw Length

Instruments for 3.5 mm Variable Angle Locking Screws*

319.090	Depth Gauge, measuring range up to 110 mm (optional)
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Instruments for 5.0 mm Variable Angle Locking Screws*

319.090	Depth Gauge, measuring range up to 110 mm (optional)
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To measure for screw length, read off of the calibrated drill bit.

Optional: The depth gauge can be used for screw length measurement. Remove the drill bit and drill guide. Use the depth gauge to measure for screw length. (1; large image shows 5.0 mm measurement and small image shows 3.5 mm measurement)

▲ Precaution:

Due to the difference in the placement of the head of a locking screw compared to a cortex screw, care should be taken when determining screw length with the depth gauge. Otherwise, the screw chosen may be too short or too long.



* Suggested instruments – other comparable instruments for 3.5 mm and 5.0 mm Variable Angle Locking Screw insertion can be used alternatively.

7. Insert VA Locking Screw

Instruments for 3.5 mm Variable Angle Locking Screws*

03.127.016	2.5 Nm Torque Limiting Handle with Quick Coupling
03.113.019	Screwdriver Shaft 3.5 Stardrive, T15, long, self-holding, for AO/ASIF Quick Coupling

Instruments for 5.0 mm Variable Angle Locking Screws*

03.231.013	T-Handle with Torque Limiting Function, 6 Nm
03.231.015	Screwdriver Shaft Stardrive®, T25, length 180 mm, for Hexagonal Coupling 6.0 mm

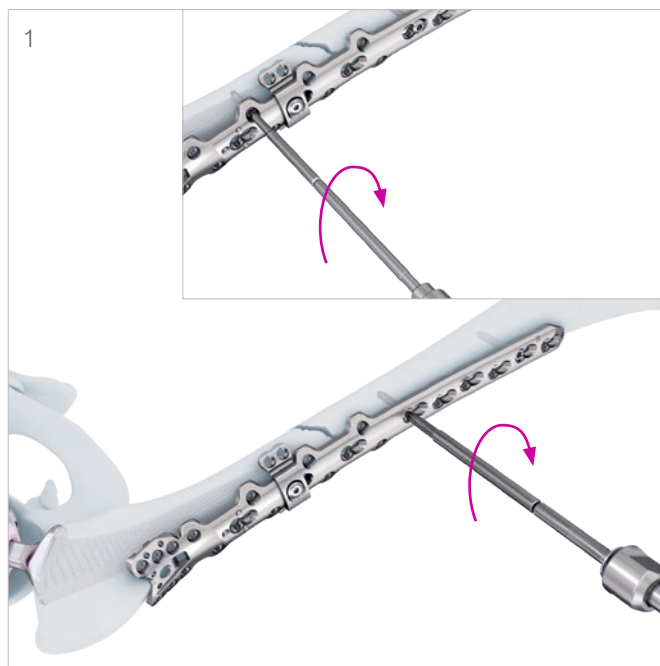
▲ Precaution:

Ensure a secure path for screw insertion (e.g. avoiding the hip stem, screws or wires used for provisional fixation) to prevent damage to implants or instruments.

Select and insert the required length variable angle locking screw. (1; large image shows 5.0 mm instruments and small image shows 3.5 mm instruments)

Initial insertion of variable angle locking screws may be done using power equipment and the appropriate screwdriver shaft with quick coupling.

Confirm screw position and length prior to final tightening.



▲ Precaution:

Final tightening must always be done manually using the appropriate torque limiting handle (2.5 Nm for 3.5 mm VA locking screws and 6 Nm for 5.0 mm VA locking screws) and screwdriver shaft to ensure secure locking and prevent construct failure. The torque limiting handles should not be used for screw removal as this may damage the instrument.

* Suggested instruments – other comparable instruments for 3.5 mm and 5.0 mm Variable Angle Locking Screw insertion can be used alternatively.

Final Check

Before closing the wound, confirm implant positioning and construct integrity.

Re-confirm that all VA locking screws as well as connecting screws, if used, are locked with the appropriate torque limiting handle:

2.5 Nm:

- 3.5 mm VA Locking Screws
- Upper Screw of Connecting Screw (used for VA-LAP and Distal Femur Spanning Attachment Plate)

6 Nm:

- 5.0 mm VA Locking Screws
- Connecting Screw for GT Ring Attachment Plate

■ **Note:**

Locking of the threaded insert of the connecting screw, used for the VA-LAP and Distal Femur Spanning Attachment Plate, cannot be reconfirmed since the upper screw has been inserted.

Optional: Implant Removal

1. Remove Cables

Instrument Set

01.221.010	Orthopaedic Cable Instrument Set with Pistol Grip Tensioner and Cable Cutter with Trigger Handle
105.924	Orthopedic Cable System Instrument Set (optional)

If placed, remove any cables with a cable cutter.

2. Remove Screws

Instruments for 3.5 mm Cortex and Variable Angle Locking Screws*

03.133.150	Handle/large with Quick Coupling
03.113.019	Screwdriver Shaft 3.5 Stardrive, T15, long, self-holding, for AO/ASIF Quick Coupling
03.133.175	2.5 mm Hex Driver Shaft, Self-Retaining Length 100 mm with Quick Coupling (optional)

Instruments for 4.5 mm Cortex and 5.0 mm Variable Angle Locking Screws*

03.010.516	Handle/large with Quick Coupling
03.010.151	Star / HexDrive Screwdriver Shaft, T25 / 3.5 mm hex

▲ Precaution:

The torque limiting handles should not be used for screw removal as this may damage the instrument.

Remove all screws with the appropriate screwdriver shaft and handle.

Additional screw removal instruments are available. For further information on using the screw removal set (01.505.200), please refer to the DePuy Synthes Screw Removal Set Surgical Technique.

* Suggested instruments – other comparable instruments for screw removal can be used alternatively.

3. Remove Plates

Instruments	
03.133.150	Handle/large with Quick Coupling
03.113.019	Screwdriver Shaft 3.5 Stardrive, T15, long, self-holding, for AO/ASIF Quick Coupling
03.010.516	Handle/large with Quick Coupling
03.010.151	Star / HexDrive Screwdriver Shaft, T25 / 3.5 mm hex

▲ Precaution:

The torque limiting handles should not be used for screw removal as this may damage the instrument.

Consider detaching any attachment plates before removing the main plate. To do so, remove the upper screw of the connecting screw with the appropriate screwdriver shaft and handle and then remove the attachment plate. The threaded insert can be left in the main plate, if applicable.

Remove the main plate.

MRI Information

MR Safety Information



Non-clinical testing has demonstrated the DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plating System is MR Conditional. A patient with these devices can be safely scanned in an MR system meeting the following conditions:

- Static magnetic field of 1.5 T or 3.0 T
- RF excitation limited to Circular Polarization
- Maximum spatial field gradient of 2,000 gauss/cm (20 T/m) for 1.5 T or 3.0 T
- Maximum MR system reported, whole-body averaged specific absorption rate (SAR) of 1 W/kg for 1.5 T and 2 W/kg for 3.0 T

Under the scan conditions defined above, the DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plating System is expected to produce a maximum temperature rise of 4 °C in 1.5 T and 3.0 T for 15 minutes of continuous scanning.

In non-clinical testing, the image artifact caused by the device extends approximately 150 mm from the DePuy Synthes 3.5 mm/4.5 mm VA-LCP PPFx Proximal Femur Plating System when imaged with a gradient echo pulse sequence and a 3.0 T MRI system.

▲ Precaution:

It is recommended that the device be kept as far away from the coil wall as possible.

Implants

VA-LCP PPFx Proximal Femur Plates, right*

02.221.110 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, right, 2 holes, Stainless Steel



02.221.112 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, right, 7 holes, Stainless Steel



02.221.114 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, right, 8 holes, Stainless Steel



02.221.120 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, right, 9 holes, Stainless Steel



02.221.122 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, right, 10 holes, Stainless Steel



02.221.124 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, right, 11 holes, Stainless Steel










02.221.130 3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, right, 12 holes, Stainless Steel



* Available nonsterile and sterile-packed. Add "S" to product number for sterile product.

VA-LCP PPFx Proximal Femur Plates, left*

02.221.111	3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, left, 2 holes, Stainless Steel	
02.221.113	3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, left, 7 holes, Stainless Steel	
02.221.115	3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, left, 8 holes, Stainless Steel	
02.221.121	3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, left, 9 holes, Stainless Steel	
02.221.123	3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, left, 10 holes, Stainless Steel	
02.221.125	3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, left, 11 holes, Stainless Steel	
02.221.131	3.5/4.5 mm VA-LCP PPFx Proximal Femur Plate, left, 12 holes, Stainless Steel	

* Available nonsterile and sterile-packed. Add "S" to product number for sterile product.

VA-Locking PPFx Greater Trochanter Ring Attachment Plates*

02.221.100	3.5 mm VA-Locking PPFx Greater Trochanter Ring Attachment Plate, small, right, Stainless Steel	
02.221.101	3.5 mm VA-Locking PPFx Greater Trochanter Ring Attachment Plate, small, left, Stainless Steel	
02.221.102	3.5 mm VA-Locking PPFx Greater Trochanter Ring Attachment Plate, large, right, Stainless Steel	
02.221.103	3.5 mm VA-Locking PPFx Greater Trochanter Ring Attachment Plate, large, left, Stainless Steel	
02.221.180S	Connecting Screw for VA-GTRAP, sterile	

* Available nonsterile and sterile-packed. Add “S” to product number for sterile product.

VA-LCP PPFx Proximal Femur Hook Plates, small*

02.221.084 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, small, right, 5 holes, Stainless Steel



02.221.085 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, small, left, 5 holes, Stainless Steel



02.221.088 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, small, right, 8 holes, Stainless Steel



02.221.089 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, small, left, 8 holes, Stainless Steel



02.221.092 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, small, right, 10 holes, Stainless Steel



02.221.093 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, small, left, 10 holes, Stainless Steel



* Available nonsterile and sterile-packed. Add "S" to product number for sterile product.

VA-LCP PPFx Proximal Femur Hook Plates, large*

02.221.086 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, large, right, 5 holes, Stainless Steel



02.221.087 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, large, left, 5 holes, Stainless Steel



02.221.090 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, large, right, 8 holes, Stainless Steel



02.221.091 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, large, left, 8 holes, Stainless Steel



02.221.094 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, large, right, 10 holes, Stainless Steel



02.221.095 3.5/4.5 mm VA-LCP PPFx Proximal Femur Hook Plate, large, left, 10 holes, Stainless Steel



VA-Locking PPFx Greater Trochanter Hook Plates*

02.221.080 3.5 mm VA-Locking PPFx Greater Trochanter Hook Plate, small, Stainless Steel



02.221.082 3.5 mm VA-Locking PPFx Greater Trochanter Hook Plate, large, Stainless Steel



* Available nonsterile and sterile-packed. Add "S" to product number for sterile product.

VA-Locking PPFx Attachment Plates*

02.221.174 3.5 mm VA-Locking Attachment Plate,
4 holes, Stainless Steel



02.221.150 3.5 mm VA-Locking PPFx Distal Femur
Spanning Attachment Plate, right,
4 holes, Stainless Steel



02.221.151 3.5 mm VA-Locking PPFx Distal Femur
Spanning Attachment Plate, left,
4 holes, Stainless Steel



02.221.152 3.5 mm VA-Locking PPFx Distal Femur
Spanning Attachment Plate, right,
4 holes, long, Stainless Steel



02.221.153 3.5 mm VA-Locking PPFx Distal Femur
Spanning Attachment Plate, left, 4 holes,
long, Stainless Steel



02.221.154 3.5 mm VA-Locking PPFx Distal Femur
Spanning Attachment Plate, right,
6 holes, Stainless Steel



02.221.155 3.5 mm VA-Locking PPFx Distal Femur
Spanning Attachment Plate, left,
6 holes, Stainless Steel



02.120.606 Connecting Screws for Locking
Attachment Plate, StarDrive Recess



* Available nonsterile and sterile-packed. Add "S" to product number for sterile product.

Screws*

02.127.110 – 3.5 mm Variable Angle Locking Screws,
02.127.190 StarDrive 15, length 10 – 90 mm



02.200.010 – 3.5 mm Cortex Screws, StarDrive 15,
02.200.090 length 10 – 90 mm



204.810 – 3.5 mm Cortex Screws, 2.5 mm Hex,
204.890 length 10 – 90 mm (Optional)



02.231.010 – 5.0 mm Variable Angle Locking PPFx
02.231.018** Screws, StarDrive 25, length 10 – 18 mm



02.231.220 – 5.0 mm Variable Angle Locking Screws,
02.231.290** StarDrive 25, length 20 – 90 mm



214.820 – 4.5 mm Cortex Screws, 3.5 mm Hex,
214.890 length 20 – 90 mm



Additionally Available Screws (optional)*

212.101 – 3.5 mm Locking Screws, StarDrive 15,
212.130 length 10 – 90 mm

213.010 – 3.5 mm Locking Screws, 2.5 mm Hex,
213.090 length 10 – 90 mm

02.221.510 – 5.0 mm Locking PPFx Screws,
02.221.518 StarDrive 25, length 10 – 18 mm

02.221.460 – 5.0 mm Locking PPFx Screws, 3.5 mm
02.221.462 Hex, length 10 – 12 mm

222.402 – 5.0 mm Locking PPFx Screws, 3.5 mm
222.404 Hex, length 14 – 18 mm

212.204 – 5.0 mm Locking Screws, StarDrive 25,
212.227 length 20 – 90 mm

213.320 – 5.0 mm Locking Screws, 3.5 mm Hex,
213.390 length 20 – 90 mm

▲ WARNINGS and Precautions on Alternative Use of Locking Screws:

Locking screws may be used as an alternative to VA locking screws, if desired.

All WARNINGS and Precautions apply to both VA locking screws and locking screws, with the following exceptions:

- All 3.5 mm locking screws must be inserted at zero degrees and on-axis with the screw hole, and final tightened with 1.5 Nm.
- All 5.0 mm locking screws must be inserted at zero degrees and on-axis with the screw hole, and final tightened with 4.0 Nm.
- Use the available guiding tools to assist with insertion at zero degrees.

* Available nonsterile and sterile-packed. Add "S" to product number for sterile product.

** Available in Stainless Steel or Stainless Steel with OPTILINK. Replace "02." with "42." for product in Stainless Steel with OPTILINK.

Cables

298.801.01S	1.7 mm Cable, Stainless Steel, sterile
298.801.10S	1.7 mm Cable, Stainless Steel, sterile, 10 pack (optional)



Additionally Available Implants (optional)

02.231.022S	5.0 mm VA Positioning Pin, sterile
02.221.002S	Cerclage Button, T15 Stardrive/2.5 mm Hex, sterile
02.221.003S	Cerclage Button, T25 Stardrive/3.5 mm Hex, sterile



Instruments

Bending Instruments

329.300 Plate Bending Press



03.221.251 Bending Driver



329.020 Bending Iron



Plate Insertion Instruments

03.221.250 Insertion Handle for VA-LCP PPFx
Proximal Femur Hook Plates



Wires

310.243 2.5 mm Drill Tip Guide Wire,
length 200 mm



03.118.020 2.8 mm Compression Wire,
length 200 mm (optional)



Sizing Templates for VA-LCP PPFx Proximal Femur Hook Plates

03.221.092 Sizing Template for VA-Locking PPFx
Greater Trochanter Hook Plate, small



03.221.093 Sizing Template for VA-Locking PPFx
Greater Trochanter Hook Plate, large



03.221.094 Sizing Template for VA-LCP PPFx
Proximal Femur Hook Plates, small



03.221.095 Sizing Template for VA-LCP PPFx
Proximal Femur Hook Plates, large



Sizing Templates for VA-LCP PPFx Proximal Femur Plates

03.221.180 Sizing Template for VA-LCP PPFx Proximal Femur Plate, right, 8 holes



03.221.181 Sizing Template for VA-LCP PPFx Proximal Femur Plate, left, 8 holes



03.221.182 Sizing Template for VA-LCP PPFx Proximal Femur Plate, right, 9 holes



03.221.183 Sizing Template for VA-LCP PPFx Proximal Femur Plate, left, 9 holes



03.221.184 Sizing Template for VA-LCP PPFx Proximal Femur Plate, right, 10 holes



03.221.185 Sizing Template for VA-LCP PPFx Proximal Femur Plate, left, 10 holes



03.221.186 Sizing Template for VA-LCP PPFx Proximal Femur Plate, right, 11 holes



03.221.187 Sizing Template for VA-LCP PPFx Proximal Femur Plate, left, 11 holes



03.221.188 Sizing Template for VA-LCP PPFx Proximal Femur Plate, right, 12 holes (optional)

03.221.189 Sizing Template for VA-LCP PPFx Proximal Femur Plate, left, 12 holes (optional)

Sizing Templates for VA-Locking PPFx Attachment Plates

03.221.100	Sizing Template for VA-Locking PPFx Greater Trochanter Ring Attachment Plate, small, right	
03.221.101	Sizing Template for VA-Locking PPFx Greater Trochanter Ring Attachment Plate, small, left	
03.221.102	Sizing Template for VA-Locking PPFx Greater Trochanter Ring Attachment Plate, large, right	
03.221.103	Sizing Template for VA-Locking PPFx Greater Trochanter Ring Attachment Plate, large, left	
03.221.150	Sizing Template for VA-Locking PPFx Distal Femur Spanning Attachment Plate, right, 4 holes	
03.221.151	Sizing Template for VA-Locking PPFx Distal Femur Spanning Attachment Plate, left, 4 holes	
03.221.152	Sizing Template for VA-Locking PPFx Distal Femur Spanning Attachment Plate, right, 4 holes, long	
03.221.153	Sizing Template for VA-Locking PPFx Distal Femur Spanning Attachment Plate, left, 4 holes, long	
03.221.154	Sizing Template for VA-Locking PPFx Distal Femur Spanning Attachment Plate, right, 6 holes	
03.221.155	Sizing Template for VA-Locking PPFx Distal Femur Spanning Attachment Plate, left, 6 holes	

03.221.253 Connecting Screw for Sizing Templates for VA-Locking PPFx Distal Femur Spanning Attachment Plates



3.5 mm Screw Insertion Instruments*

03.133.003 3.5 mm Variable Angle Drill Guide



03.133.004 2.8 mm Threaded Guide for 3.5 mm Screw, VA® and LCP®



03.133.108 Drill Bit 2.8 mm, Quick Coupling, length 200 mm, Calibration 110 mm



03.133.109 3.5 mm Drill Bit/Quick Coupling 150mm (optional)



03.127.016 2.5 Nm Torque Limiting Handle with Quick Coupling



03.133.104 Drill Bit 2.5 mm, Quick Coupling, length 240mm, calibration 150mm



03.133.002 3.5 mm Non-Locking Drill Guide



03.133.001 3.5 mm Neutral Sleeve Adapter



03.113.019 Screwdriver Shaft 3.5 Stardrive, T15, long, self-holding, for AO/ASIF Quick Coupling



314.116 StarDrive™ Screwdriver Shaft Quick Coupling/T15 (optional)



03.133.175 2.5 mm Hex Driver Shaft, Self-Retaining Length 100 mm with Quick Coupling (optional)



* Suggested instruments – other comparable instruments for 3.5 mm Cortex Screw and 3.5 mm Variable Angle Locking Screw insertion can be used alternatively.

03.133.150 Handle/large with Quick Coupling

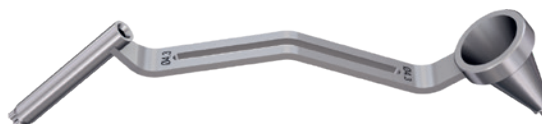


319.090 Depth Gauge, measuring range up to 110 mm



4.5 / 5.0 mm Screw Insertion Instruments*

03.122.040 VA Double Drill Sleeve, 4.3 mm



310.431 4.3 mm Drill Bit, 180 mm, quick coupling



324.213 4.3 mm Percutaneous Drill Bit, quick coupling, 300 mm, calibrated (optional)



310.440 4.5 mm Drill Bit, 145 mm, quick coupling (optional)



03.231.013 T-Handle with Torque Limiting Function, 6 Nm











03.231.018 Handle with Torque Limiting Function, 6 Nm (optional)



03.231.015 Screwdriver Shaft Stardrive®, T25, length 180 mm, for Hexagonal Coupling 6.0 mm



* Suggested instruments – other comparable instruments for 4.5 mm Cortex Screw and 5.0 mm Variable Angle Locking Screw insertion can be used alternatively.

315.930	3.2 mm Drill Bit, calibrated, length 230/205 mm, 3-flute, for Quick Coupling	
310.310	Drill Bit Ø 3.2 mm, length 145/120 mm, 2-flute, for Quick Coupling (optional)	
323.460	4.5 mm Universal Drill Guide	
03.010.151	Star / HexDrive Screwdriver Shaft, T25 / 3.5 mm hex	
314.119	Screwdriver Shaft Stardrive® 4.5/5.0, T25, self-holding, for AO/ASIF Quick Coupling (optional)	
314.560	Screwdriver Shaft, hexagonal, large, Ø 3.5 mm, length 165 mm, for Quick Coupling (optional)	
03.010.516	Handle/large with Quick Coupling	
319.090	Depth Gauge, measuring range up to 110 mm	

Additionally Available Instruments (optional)

321.120	Tension Device, articulated, span 20 mm	03.231.001	Insertion Handle for 4.5 mm VA LCP Curved Condylar Plate
321.160	Combination Wrench Ø 11.0 mm	03.231.005	Interlocking Bolt for 4.5 mm VA LCP Curved Condylar Plate Insertion Handle
03.120.026	2.5 mm Drill Tip Guide Wire, 300 mm	03.231.006	Nut for Interlocking Bolt for 4.5 mm VA LCP Curved Condylar Plate Insertion Handle
338.002	2.5 mm Drill Tip Guide Wire, 300 mm		
03.118.010	2.8 mm Compression Wire, length 200 mm, thread length 10 mm		
03.118.015	2.8 mm Compression Wire, length 200 mm, thread length 15 mm		
03.118.025	2.8 mm Compression Wire, length 200 mm, thread length 25 mm		
03.118.030	2.8 mm Compression Wire, length 200 mm, thread length 30 mm		
03.118.035	2.8 mm Compression Wire, length 200 mm, thread length 35 mm		
03.118.040	2.8 mm Compression Wire, length 200 mm, thread length 40 mm		
03.118.045	2.8 mm Compression Wire, length 200 mm, thread length 45 mm		
03.118.050	2.8 mm Compression Wire, length 200 mm, thread length 50 mm		
03.118.055	2.8 mm Compression Wire, length 200 mm, thread length 55 mm		
03.118.060	2.8 mm Compression Wire, length 200 mm, thread length 60 mm		

Set Lists

VA-LCP Periprosthetic Proximal Femur Plating System Sets

01.221.080	Set for VA-LCP PPFx Proximal Femur Plates, right
01.221.082	Set for VA-LCP PPFx Proximal Femur Plates, left
01.221.084	Set for VA-LCP PPFx Proximal Femur Hook Plates, small
01.221.086	Set for VA-LCP PPFx Proximal Femur Hook Plates, large
01.221.088	Set for VA-Locking PPFx Attachment Plates
01.221.090	Set for Sizing Template for VA-LCP PPFx Proximal Femur / Proximal Femur Hook Plates
01.221.092	Set for Sizing Template for VA-Locking PPFx Attachment Plates
01.221.094	Set for 3.5 mm Screw Insertion Instruments
01.221.096	Set for 4.5 mm Screw Insertion Instruments
01.221.101	Set for Screw Rack for PPFx 3.5/4.5 mm
01.221.150	Set for VA-LCP PPFx Proximal Femur Plates and Attachment Plates
01.221.160	Set for VA-LCP PPFx Proximal Femur Hook Plates
01.221.170	Set for Sizing Templates for VA-LCP PPFx Proximal Femur Plating System
01.221.180	Set for 3.5/4.5 mm Screw Insertion Instruments

Additionally Available Sets (optional)

105.924	Orthopedic Cable System Instrument Set
01.221.010	Orthopedic Cable Instrument Set, with Pistol Grip Tensioner and Trigger Handle Cable Cutter
01.505.200	Screw Removal Set
01.231.017	4.5 mm VA LCP Instrument and Screw Set
01.133.201	Universal Small Fragment Core System Set (Insertion Tray only)
01.127.001	3.5 mm VA LCP Proximal Tibia Set

Please also refer to the package insert(s) or other labeling associated with the devices identified in this surgical technique for additional information.

For detailed cleaning and steam sterilization information, please refer to www.depuysynthes.com/hcp/cleaning-sterilization.

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

Some devices listed in this surgical technique may not have been licensed in accordance with Canadian law and may not be for sale in Canada. Please contact your sales consultant for items approved for sale in Canada.

Not all products may currently be available in all markets.



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

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