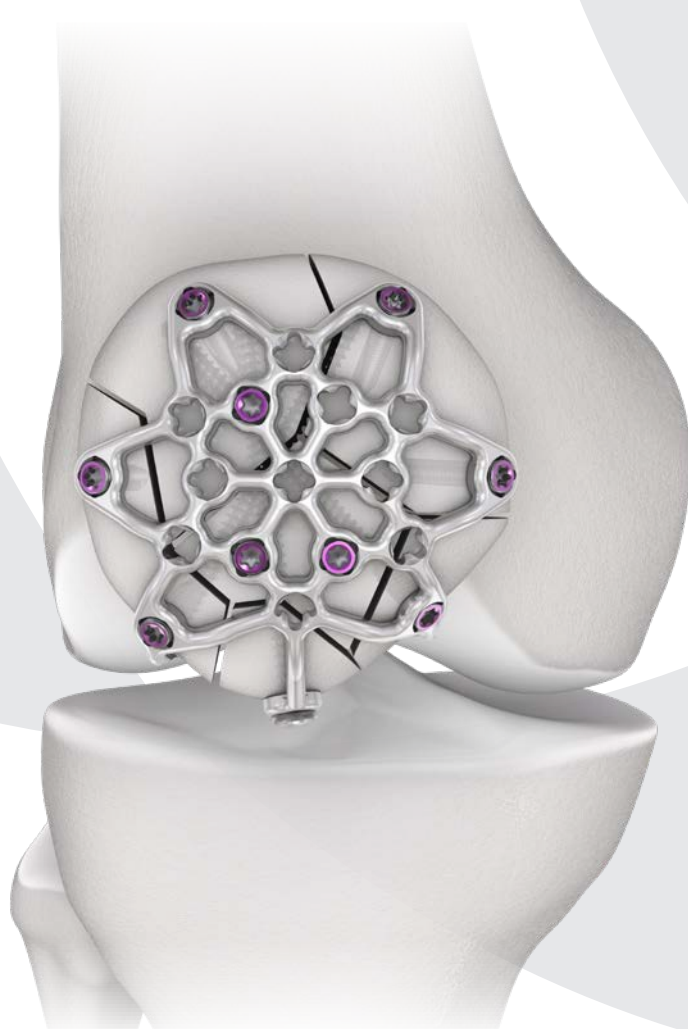


Variable Angle Locking Patella Plating System

# Variable Angle Locking Anterior Patella Plates 2.7

Surgical Technique



---

 Image intensifier control

This description alone does not provide sufficient background for direct use of DePuy Synthes products. Instruction by a surgeon experienced in handling these products is highly recommended. Please refer to the IFU for product information including but not limited to indications, contraindications, warnings, precautions and adverse effects.

**Processing, Reprocessing, Care and Maintenance**

For general guidelines, function control and dismantling of multi-part instruments, as well as processing guidelines for implants, please contact your local sales representative or refer to:

<http://emea.depuyshes.com/hcp/reprocessing-care-maintenance>

For general information about reprocessing, care and maintenance of DePuy Synthes reusable devices, instrument trays and cases, as well as processing of DePuy Synthes non-sterile implants, please consult the Important Information leaflet (SE\_023827) or refer to:

<http://emea.depuyshes.com/hcp/reprocessing-care-maintenance>

# Table of Contents

---

<b>Introduction</b>	Patella Fractures	2
	VA Locking Anterior Patella Plates 2.7	3
	Indications and Contraindications	5
	The AO Principles of Fracture Management	6

---

<b>Approach</b>		7
-----------------	--	---

---

<b>Implantation – Complex Fractures</b>		11
	Implantation	12

---

<b>Implantation – Simple or Wedge Fractures</b>		24
	Implantation	25

---

<b>Implant Removal</b>		36
------------------------	--	----

---

<b>Product Information</b>	Plates	37
	Screws	38
	Instruments and Cases	39

---

<b>MRI Information</b>		43
------------------------	--	----

# Patella Fractures

Fractures of the patella can lead to profound impairment due to its crucial function in the extensor mechanism of the knee. In a fractured patella, soft tissue structures provide distraction forces across the fragments, making stable fixation challenging to maintain over time.

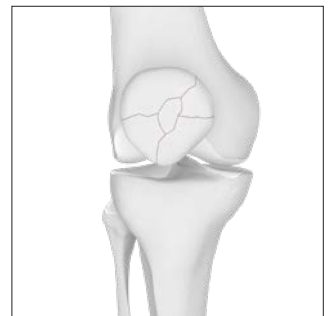
Simple and complex patella fractures are typically treated using wires, screws and sutures in different combinations as a primary fixation method.



Simple Fractures

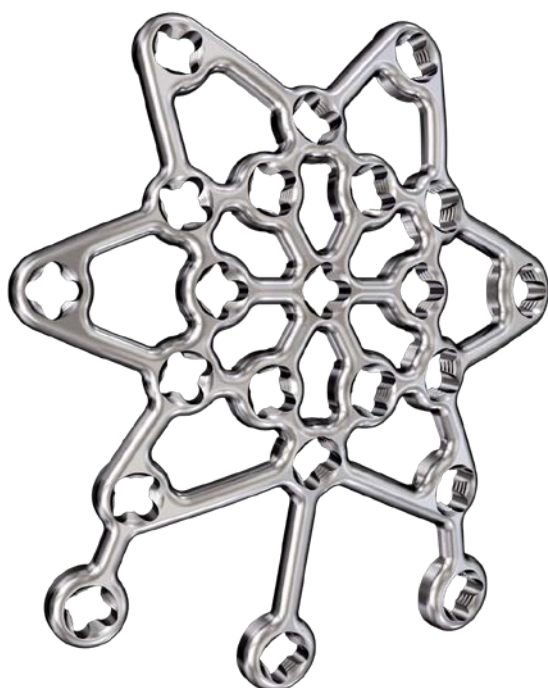


Wedge Fractures



Complex Fractures

# VA Locking Anterior Patella Plates 2.7



## Product overview

- Range of plates to address different fracture patterns as per approved indication and different patient anatomy.
- Plates are bendable, contourable and cuttable.
- Windows can be used to attach soft tissue with suture.
- Variable angle (VA) locking holes enable up to 15° of screw angulation.
- Screw holes accept 2.4 mm\* and 2.7 mm VA locking, and cortex screws.
- Available in Titanium and Stainless Steel.

Core Plates

3-hole Plates

6-hole Plates

Small



Standard

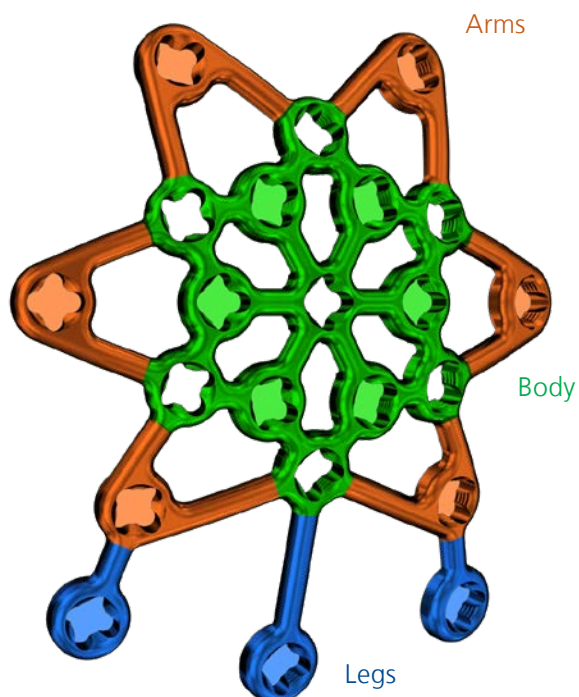
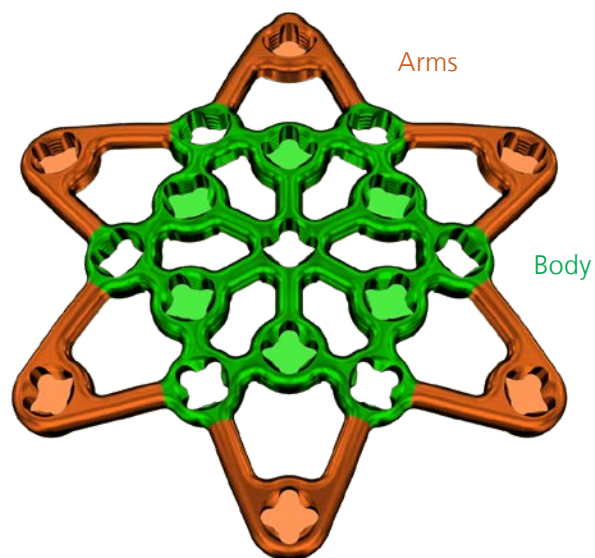


\* 2.4 mm anterior-posterior locking screws may only be used in small, non-load bearing fragments.

The 2.7mm VA Locking Anterior Patella Plate is designed for utility across various fracture patterns. The surgical technique guide includes two sections:

- Complex Fractures – 3-hole and 6-hole plates are recommended.
- Simple Fractures – Core, 3-hole, and 6-hole plates may be used, based on fracture complexity.

Use the plate anatomy charts shown as a reference throughout the technique guide.



# Indications and Contraindications

---

## **Indications**

The DePuy Synthes Variable Angle Locking Patella Plating System is indicated for the fixation and stabilization of patellar fractures in normal and osteopenic bone in skeletally mature patients.

## **Contraindications**


No contraindication specific to these devices.


# The AO Principles of Fracture Management


## Mission

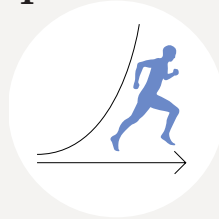
The AO's mission is promoting excellence in patient care and outcomes in trauma and musculoskeletal disorders.

## AO Principles<sup>1,2</sup>

- 

Fracture reduction and fixation to restore anatomical relationships.
- 

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

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

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

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

<sup>2</sup> Buckley RE, Moran CG, Apivatthakakul T. AO Principles of Fracture Management: 3<sup>rd</sup> ed. Vol. 1: Principles, Vol. 2: Specific fractures. Thieme; 2017.

# Approach

## 1. Position the patient

Patient should be in a supine position with the knee in slight flexion using a roll under the knee.

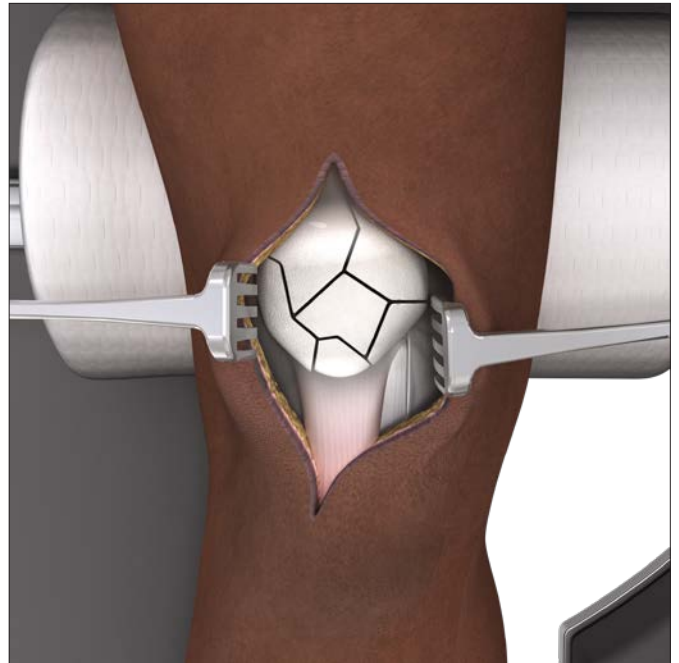
**Note:** This positioning facilitates fluoroscopic control in the lateral and or oblique views.



---

## 2. Make incision

Make a midline or parapatellar (medial or lateral) incision to ensure adequate exposure to the fracture site.



---

### 3. Fracture reduction

---

#### Instruments

---

399.780      Reduction Forceps, large, with Points, speed Lock, length 200 mm

---

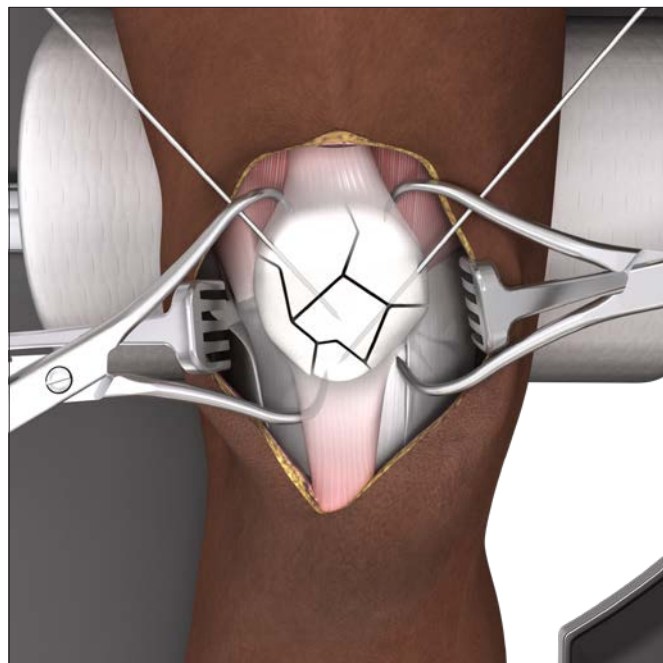
292.160      Kirschner Wire Ø 1.6 mm with trocar tip, length 150 mm, Stainless Steel

---

Reduce the fragments using reduction forceps, fix the achieved position of patella fragments with Kirschner Wires, and use image intensification control and direct visualization to verify reduction. The reduction method may be fracture specific.

If using image intensification to confirm reduction, be sure to take appropriate angle views of the articular surface.

**Note:** Place the reduction forceps and Kirschner Wires in a manner that will not interfere with the plate placement.



## 4. Templating

Templates are available to help determine proper sizing and help predict contoured shape of implant. The templates are provided in the 6-hole configuration only, which can be used to approximate sizing and contouring for core, 3-hole and 6-hole implants. Templates are pre-formed to match the implant and include holes for k-wire fixation.

### Instruments

03.137.002S Patella Template Kit, Anterior, Sterile

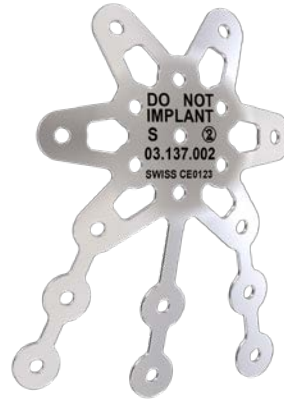
391.940 Wire Cutter, long, length 230 mm

### Notes:

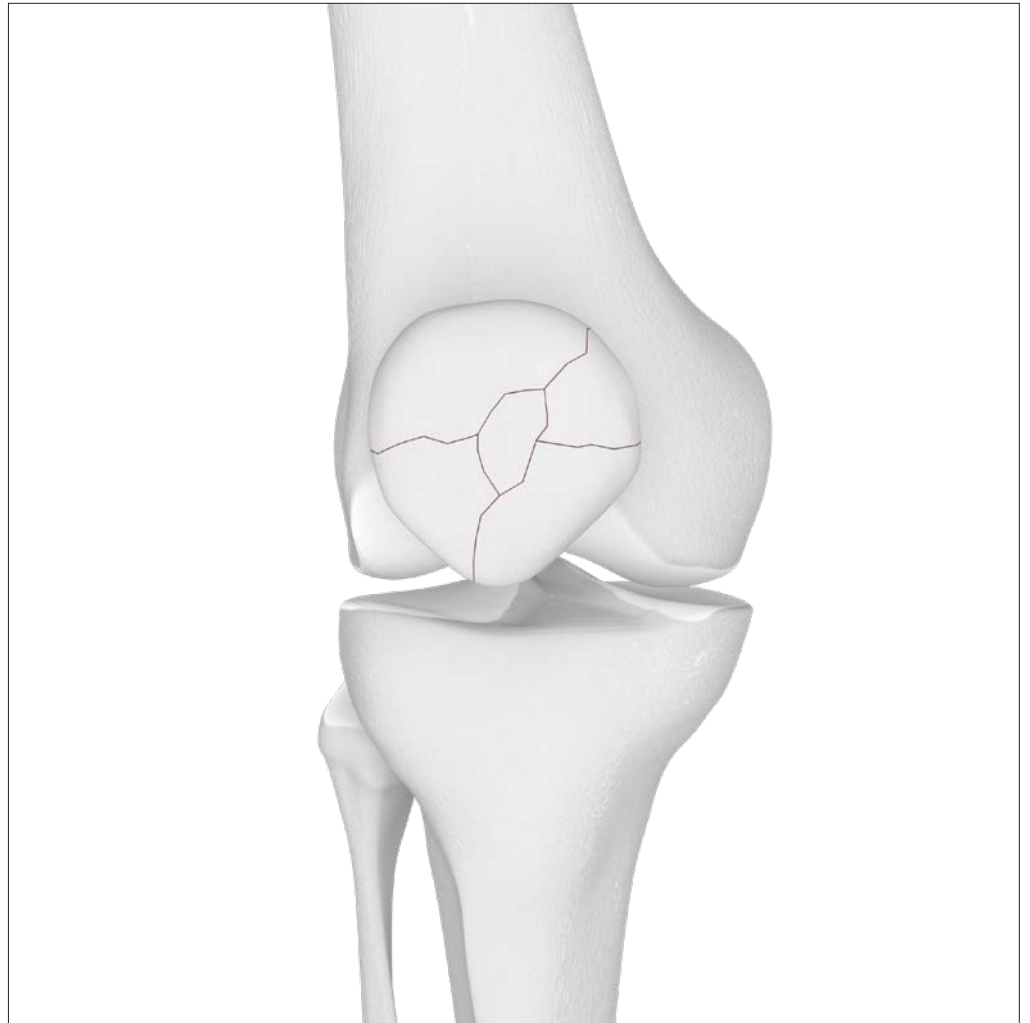
- The distal arms of the template are slightly wider than distance between arms of the core plate.
- Templates are intended for single use only.
- Legs of the template can be bent or cut as required.

**Precaution:** Do not implant templates.

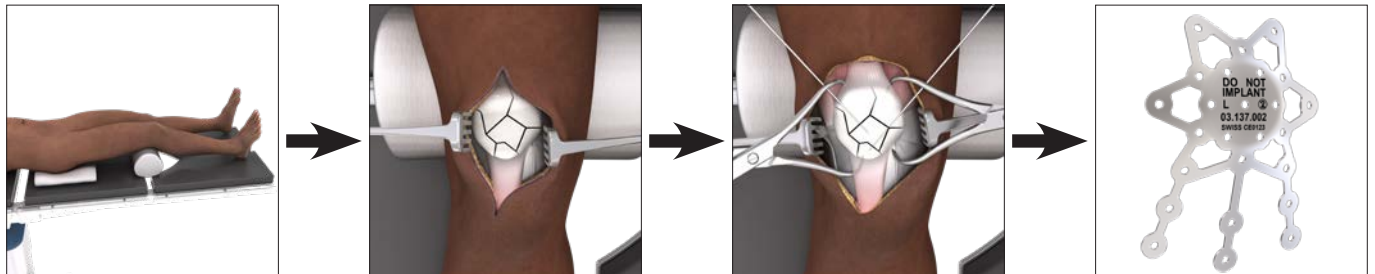
**Warning:** Failure to smooth sharp edges may result in user injury.



# Implantation – Complex Fractures



Perform steps 1 through 4 on pages 7–10.

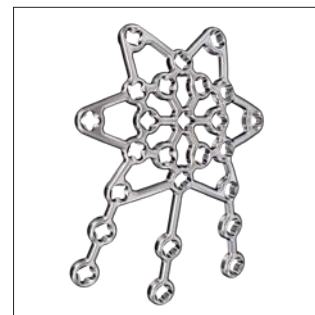
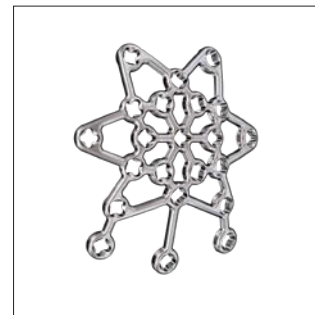


## 5. Selection of 2.7 mm Variable Angle Locking Patella Plate

Select an implant of the desired size and material:

### Implants

02.137.001S	VA Locking Patella Plate 2.7, anterior, 3-hole, small, Stainless Steel, sterile
02.137.002S	VA Locking Patella Plate 2.7, anterior, 6-hole, small, Stainless Steel, sterile
02.137.004S	VA Locking Patella Plate 2.7, anterior, 3-hole, Stainless Steel, sterile
02.137.005S	VA Locking Patella Plate 2.7, anterior, 6-hole, Stainless Steel, sterile
04.137.001S	VA Locking Patella Plate 2.7, anterior, 3-hole, small, Titanium (TiCP), sterile
04.137.002S	VA Locking Patella Plate 2.7, anterior, 6-hole, small, Titanium (TiCP), sterile
04.137.004S	VA Locking Patella Plate 2.7, anterior, 3-hole, Titanium (TiCP), sterile
04.137.005S	VA Locking Patella Plate 2.7, anterior, 6-hole, Titanium (TiCP), sterile



**Precaution:** Selection of plate material should take into account any known patient allergies.

**Warning:** Metals should not be mixed. Be sure to select the appropriate screw options for the plate selected.

## 6. Plate cutting (optional)

Cut the plate as needed to address the fracture pattern and patient anatomy.  
Use the plate file to help smooth sharp edges of the plate which may result from cutting.

---

### Instruments

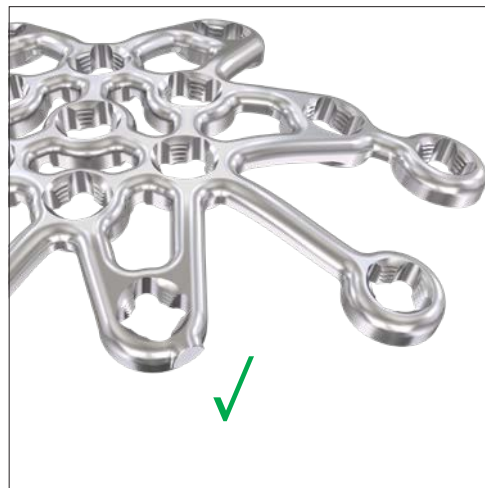
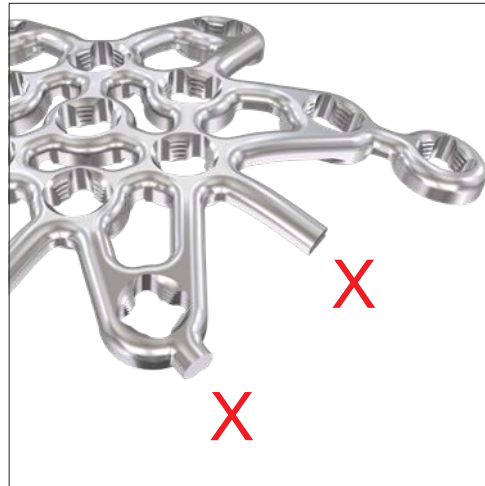
391.940	Wire Cutter, long, length 230 mm
03.500.020	File, with Hexagonal Coupling
311.006	Handle, medium, with Hexagonal Coupling

---

### Warnings

- Failure to smooth sharp edges may result in user injury or soft tissue irritation for the patient.
- Do not cut the body of the plate to prevent compromising the structural integrity of the plate.

**Precaution:** To help avoid soft tissue irritation, cut as close as possible to the distal hole without damaging the VA hole.



## 7. Plate contouring

Plates are pre-contoured. Ex-situ and in-situ bending can be performed to ensure the plate fits the specific anatomy.

The plate should be contoured to match the patient's anatomy before inserting fixation screws.

### Instruments

03.137.000	Plate Bending Instrument, Straight
03.137.001	Plate Bending Instrument, Curved

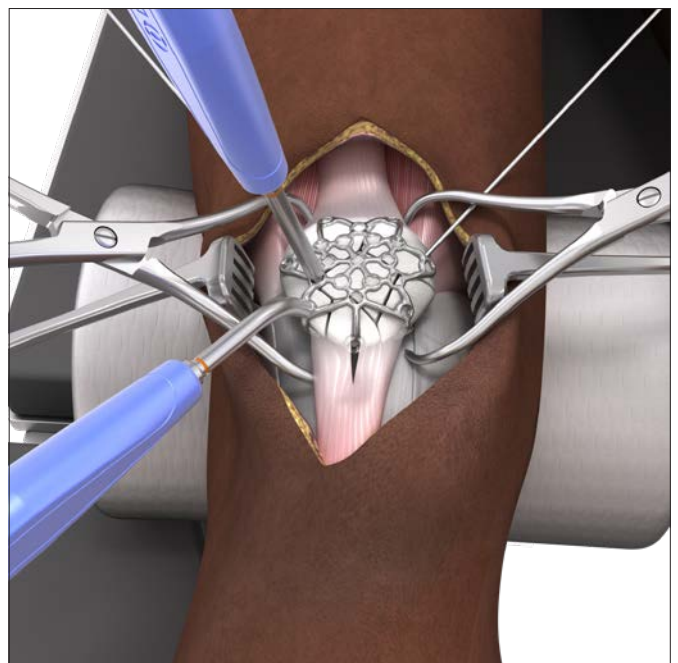
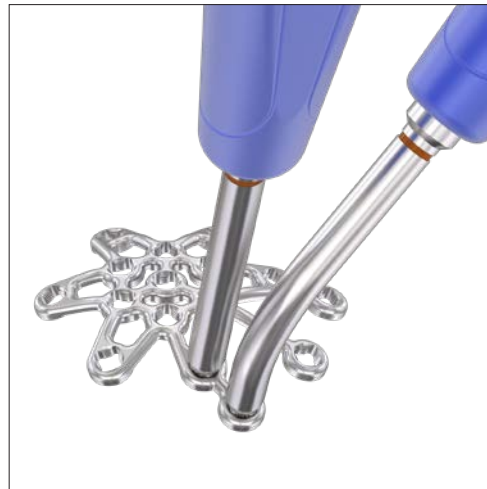
### Notes

- A well-contoured plate compressed to the bone supports stable fixation and minimizes prominence of the plate.
- Templates may be used as a reference for approximate shape during ex-situ bending of the plate.

### Precautions

- The patellar tendon should be split longitudinally as needed when using a leg to capture distal pole fragments. Transverse incisions should not be made into the patellar tendon to avoid rupture or other soft tissue damage.
- Using adjacent holes, bend the plate between the VA locking holes. Do not deform the threaded part of the holes or overbend the plates during bending as this may adversely affect insertion of VA locking screws.

**Warning:** Do not bend the plate beyond what is required to match the anatomy. Reverse bending or use of the incorrect instrumentation for bending may weaken the plate and lead to premature plate failure.



## 8. Provisional plate fixation

Do not place provisional fixation until the plate is adequately adapted (i.e. to the inferior pole) and proper reduction is achieved.

Maintain fracture reduction using Kirschner wires or reduction forceps. Position the plate over the patella, ensuring appropriate placement according to the fracture pattern and patient anatomy. Provisionally fixate the plate using 1.6 mm threaded compression wires.

Verify proper reduction after achieving provisional fixation.

---

### Instruments

---

03.211.410.01    Compression Wire Ø 1.6 mm,  
length 150 mm, thread length 10 mm

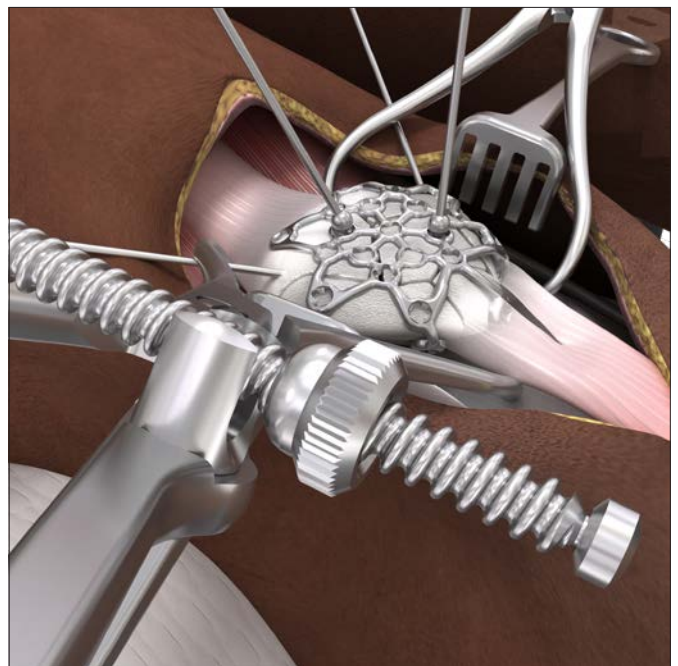
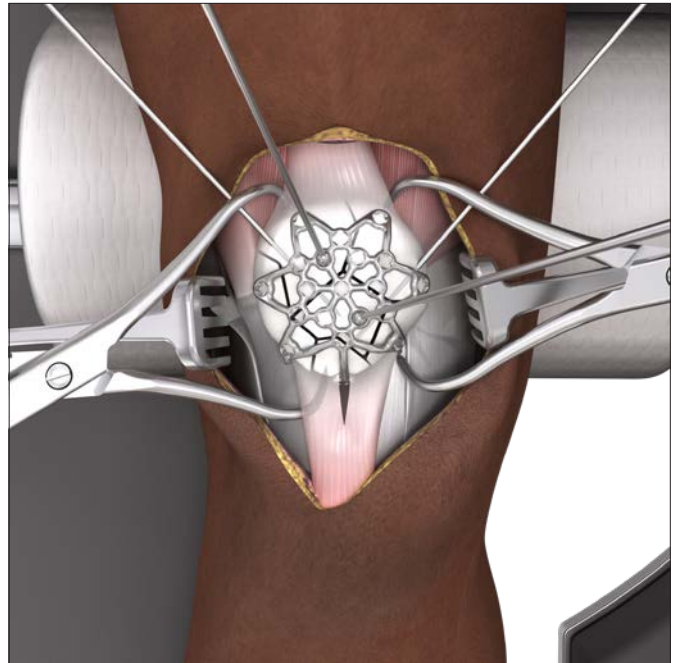
---

292.160         Kirschner Wire Ø 1.6 mm with trocar  
tip, length 150 mm, Stainless Steel

---

**Note:** Alignment of the extensor mechanism with bony anatomy should be considered when placing the plate.

**Precaution:** Plate legs should be placed as to not interfere with the articular surface.



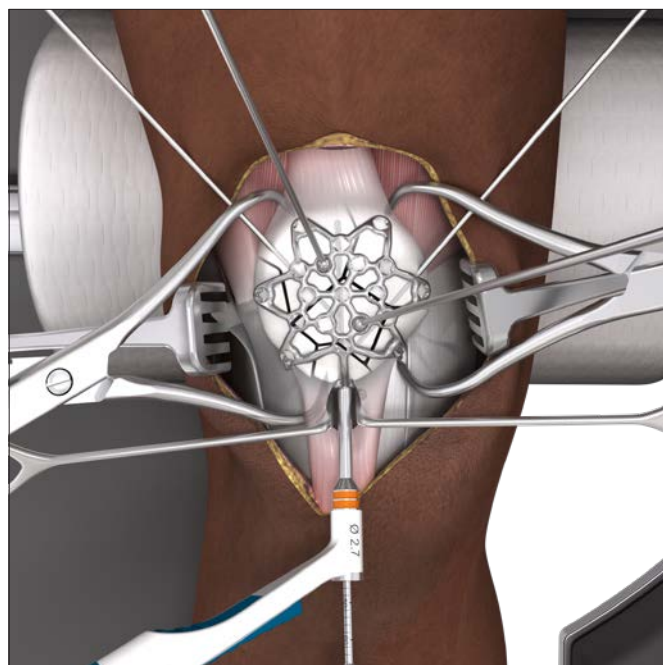
## 9. Screw insertion

In most complex fractures, it is important to place a distal pole screw from the distal pole to the proximal pole first.

Depending on the fracture pattern, this screw should be inserted in the middle of the distal pole, where the inferior plate leg is positioned as shown.

A variable angle locking screw may be used, or, if compression is desired (between the plate and bone or inter fragmentary), a cortex screw may be used.

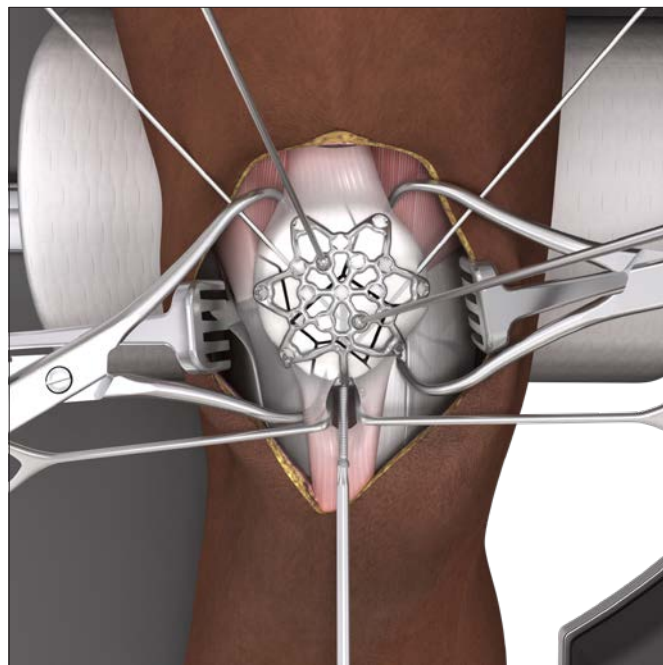
Using the appropriate instruments, drill pilot holes for cortex and variable angle locking screws and perform screw insertion.



1. Variable Angle locking screw with pole technique.

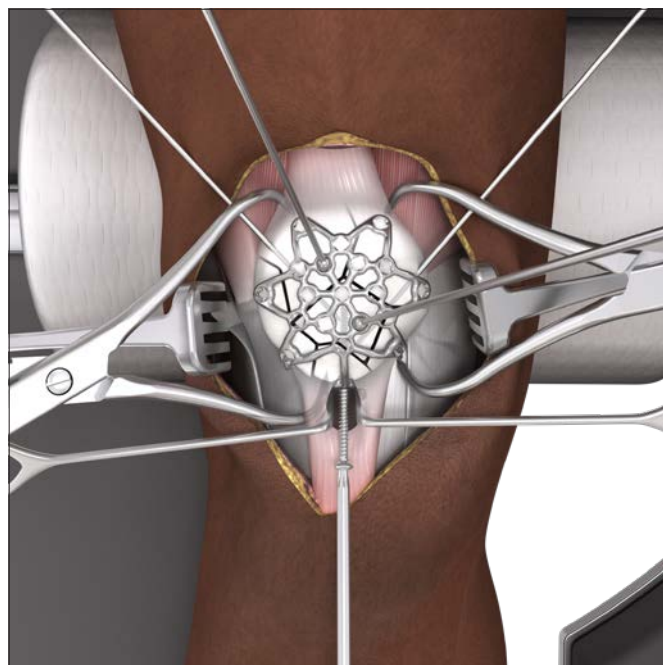
**Warning:** To achieve the lowest profile construct, do not use cortex screws for anterior to posterior screw fixation.

**Precaution:** The sequence of screw insertion is important to note when using polar and rim screws of the 3-hole and 6-hole patella plates. Failure to insert screws in the recommended sequence may result in obstruction with other screws and consequently, inability to deliver a stable construct.



2. Optional Cortex screw pole technique

**Warning:** If using cortex screws with a complex fracture, ensure the fragments are not secondarily displaced.



## 9a. Drill using predefined nominal angle technique and measure depth

### Instruments for Ø 2.7 mm Screws

03.133.008	Threaded Drill Guide 2.0 mm for Screw 2.7 mm, for VA and LCP
03.133.101	Drill Bit Ø 2.0 mm, Quick Coupling, length 140 mm, Calibration 60 mm
03.118.007	Depth Gauge, percutaneous

VA locking screws can be inserted into the plate at the predefined hole angle. Cortex screws must be inserted into the plate at the predefined hole angle. Insert and lock the tip of the Threaded Guide for 2.7 mm Screws into the VA locking hole. The Threaded Guide will self retain in the VA locking hole.

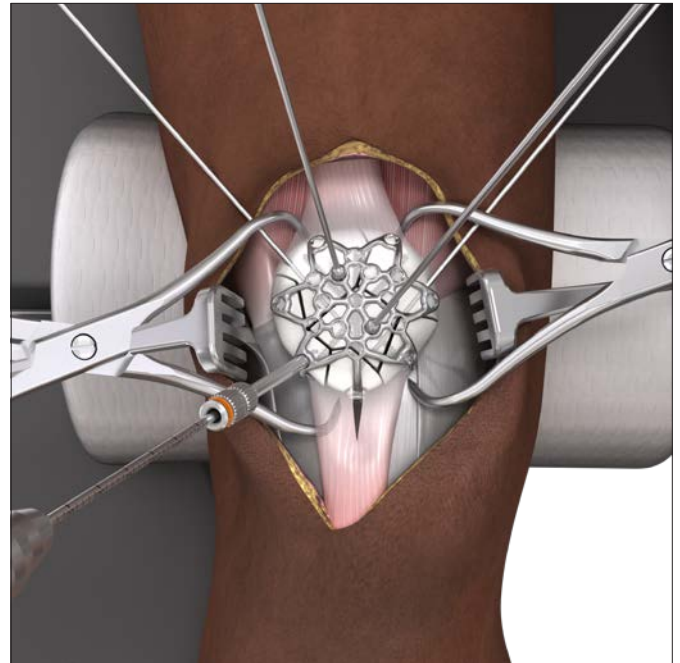
Drill to the desired depth. Verify the drill bit depth under radiographic imaging.

Use the calibrated drill bit or depth gauge to measure for the correct screw length.

### Precautions

- A minimum of two screws per fragment is recommended; however, if this is not possible due to fragment size, after placing a single screw an additional augmentation technique should be considered as described in section 11. Anterior to posterior directed screws should be unicortical and locking.
- Be sure to consider screw trajectory to avoid collision with other screws, Kirschner Wires or other hardware.
- Ensure drill bits do not protrude into the articular surface.

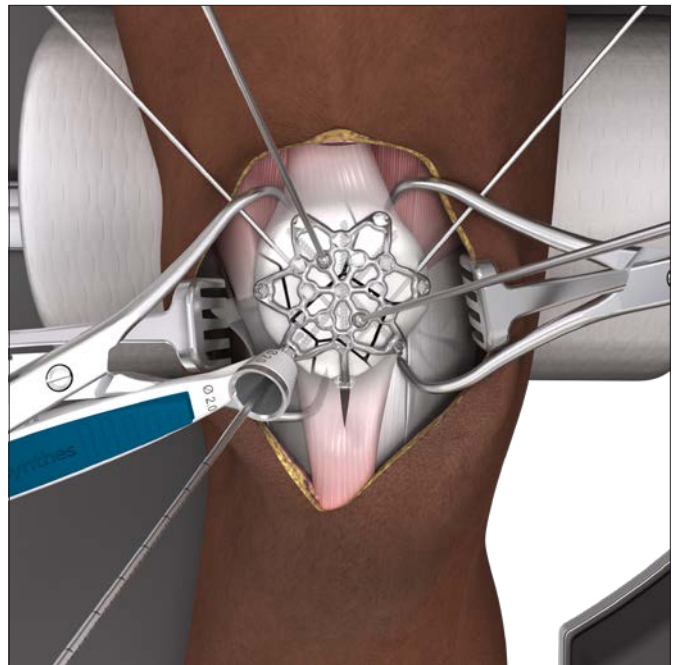
**Warning:** 2.4 mm anterior-posterior locking screws may only be used in small, non-load bearing fragments.



## 9b. Drill using variable angle locking technique and measure depth

### Instruments for Ø 2.7 mm Variable Angle Locking Screws

03.133.007	VA Drill Guide 2.7 mm
03.133.101	Drill Bit Ø 2.0 mm, Quick Coupling, length 140 mm, Calibration 60 mm
03.118.007	Depth Gauge, percutaneous



To insert the variable angle locking screw off the nominal axis, insert the cone-shaped drill guide in the desired variable angle locking screw hole in the plate.

The drill guide cone will self-retain in the hole. The funnel of the drill guide allows a drilling angle within a 30-degree cone.

When drilling off axis, the drill guide should remain in place and the drill bit may be aimed in any direction within the cone. Use the depth gauge to measure for the correct screw length.

### Precautions

- A minimum of two screws per fragment is recommended; however, if this is not possible due to fragment size, after placing a single screw an additional augmentation technique should be considered as described in section 11. Anterior to posterior directed screws should be unicortical and locking.
- Be sure to consider screw trajectory to avoid collision with other screws, Kirschner Wires or other hardware.

- Free hand drilling is not recommended. It is important not to angulate more than 15 degrees from the central axis of the screw hole. Over angulation may result in difficulty while locking the screw and inadequate screw locking. To ensure that the drill guide is locked correctly, do not angle the drill bit in excess of +/-15 degrees from the nominal trajectory of the hole.
- Ensure drill bits do not protrude into the articular surface.

**Warning:** 2.4 mm anterior-posterior locking screws may only be used in small, non-load bearing fragments.

## 10. Screw placement

### Instruments

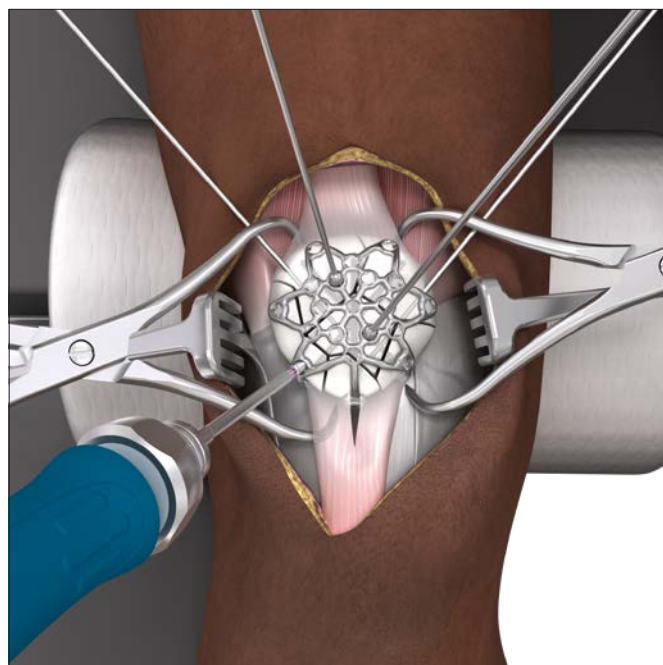
03.133.150	Screwdriver Handle, Universal
314.467	Screwdriver Shaft, Stardrive®, T8, self-holding

Insert the correct length variable angle locking screw or cortex screws. Insert the screw until the screw head is seated in the variable angle locking hole. Insert additional screws as needed.

### Precautions

- **Do not over-tighten the screws. This allows for the screws to be easily removed should they not be in the desired position.**
- **Ensure screws do not protrude into the articular surface. Use image intensification finger palpation or direct visualization as needed to help confirm that screws do not protrude through the articular surface.**

Confirm proper alignment, screw placement, and screw length with multiple views under image intensification.



---

## 10a. Perform final tightening of VA Locking Screws

---

### Instruments for Ø 2.7 mm Variable Angle Locking Screws

---

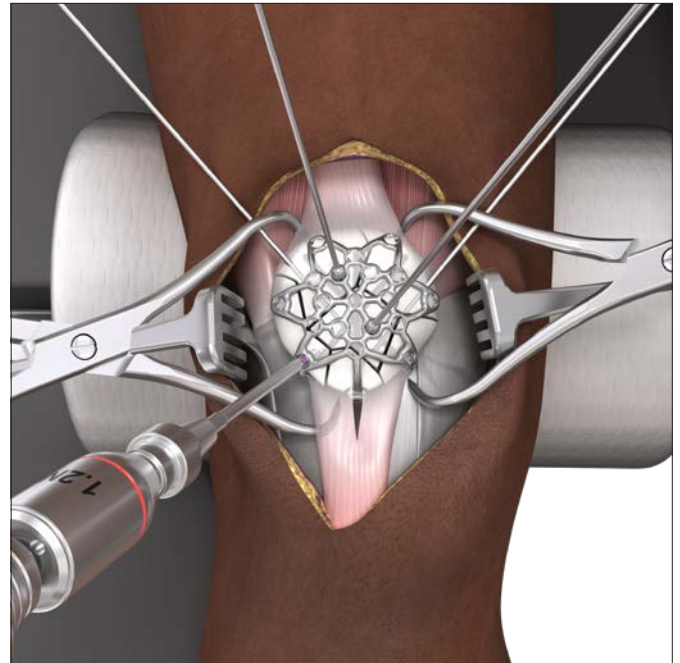
03.110.002	Torque Limiter, 1.2 Nm, with AO/ASIF Quick Coupling
03.133.150	Screwdriver Handle, Universal
314.467	Screwdriver Shaft, Stardrive®, T8, self-holding

---

Use the appropriate torque limiter (TL) to final tighten the variable angle locking screws. Assemble the torque limiter to the T8 StarDrive Screwdriver shaft and the handle for torque limiter.

After appropriate screw angle and length have been determined, manually insert the screw using the TL assembly.

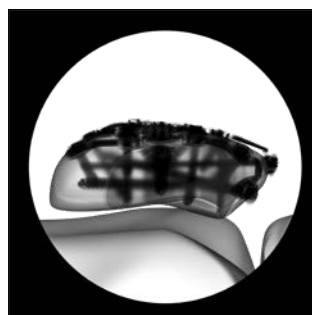
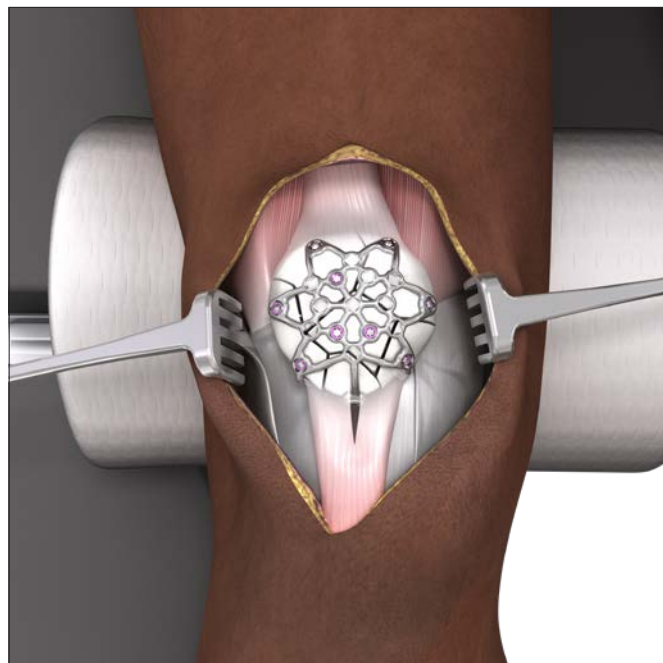
Use of the TL is mandatory when performing final tightening of the screws into variable angle locking holes to ensure the correct amount of torque is applied.



## 11. Verify reduction and fixation stability

- Remove all provisional wires, clamps and confirm final fixation of plate with image intensification.

Perform visual and palpable control of fracture gaps through passive non-aggressive knee flexion/extension.

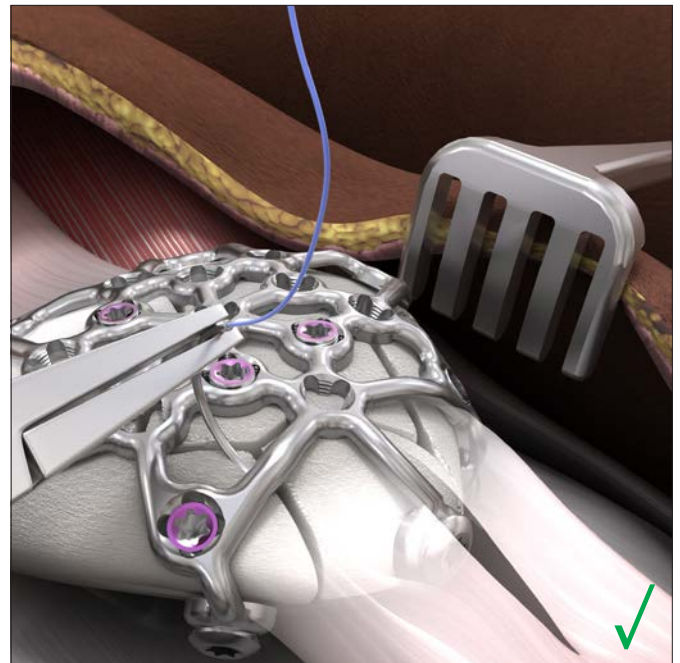


### Soft Tissue Anchoring with Suture

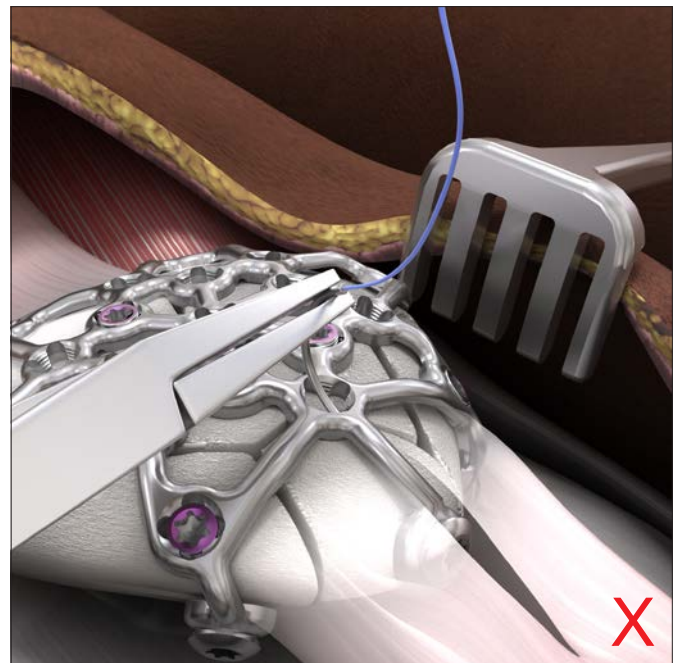
The plate may be used as an anchor point to reapproximate soft tissue. In cases of comminution/inferior bone quality, the Krakow suture or other augmentation techniques should be used.

### Warnings

- An augmentation technique (e.g. with suture, independent lag screws) should be considered for peripheral bone fragment fixation with soft tissue approximation to ensure stability of fragments during bone and soft tissue healing.
- For retinaculum repair, ensure the soft tissue can be anchored without tilting the patella and affecting biomechanics of the joint.
- Suture should be threaded through the windows of the plate, not the VA locking holes. Threads of locking holes can result in suture breakage. Suture should be placed to avoid migration and loosening.

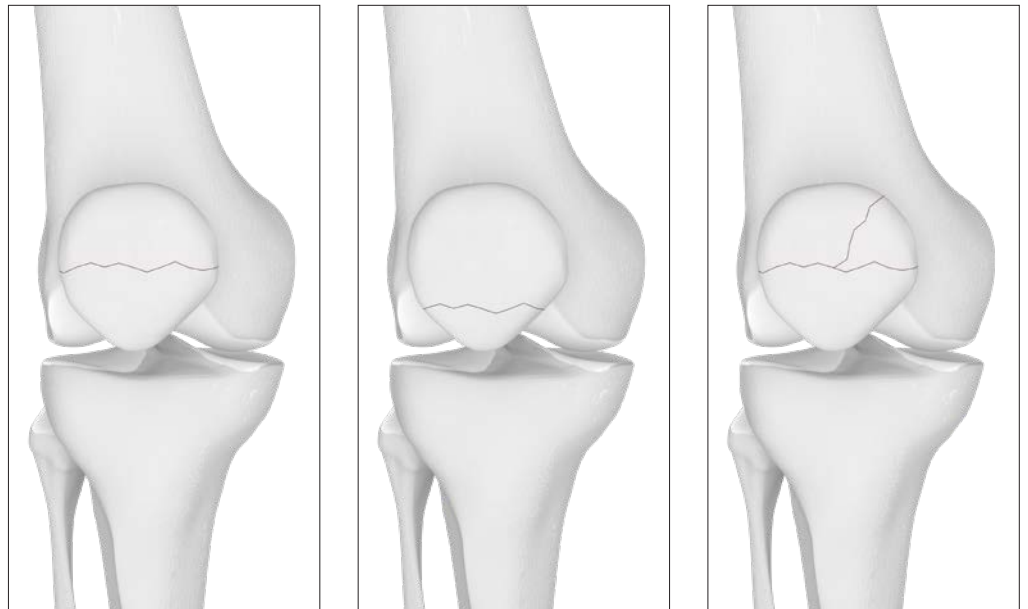


Correct

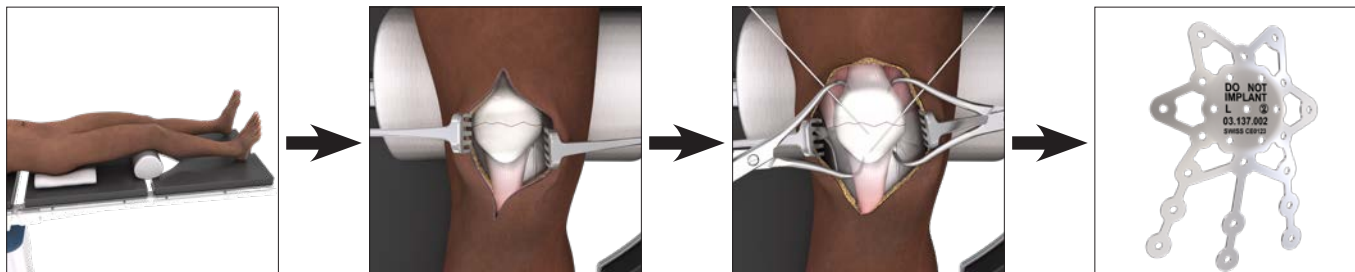


Incorrect

# Implantation – Simple or Wedge Fractures



Perform steps 1 through 4 on pages 7–10.



## 5. Selection of 2.7 mm Variable Angle Locking Patella Plate

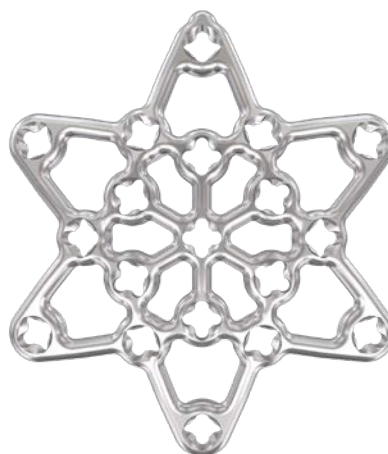
Select an implant of the desired size and material:

### Implants

02.137.000S	VA Locking Patella Plate 2.7, anterior, core, small, Stainless Steel, sterile
02.137.003S	VA Locking Patella Plate 2.7, anterior, core, Stainless Steel, sterile
04.137.000S	VA Locking Patella Plate 2.7, anterior, core, small, Titanium (TiCP), sterile
04.137.003S	VA Locking Patella Plate 2.7, anterior, core, Titanium (TiCP), sterile

**Precaution:** Selection of plate material should take into account any known patient allergies.

**Warning:** Metals should not be mixed. Be sure to select the appropriate screw options for the plate selected.



---

## 6. Plate contouring

Plates are pre-contoured. Ex-situ and in-situ bending can be performed to ensure the plate fits the specific anatomy.

The plate should be contoured to match the patient's anatomy before inserting fixation screws.

**Note:** Templates may be used as a reference for approximate shape during ex-situ bending of the plate.

---

### Instruments

---

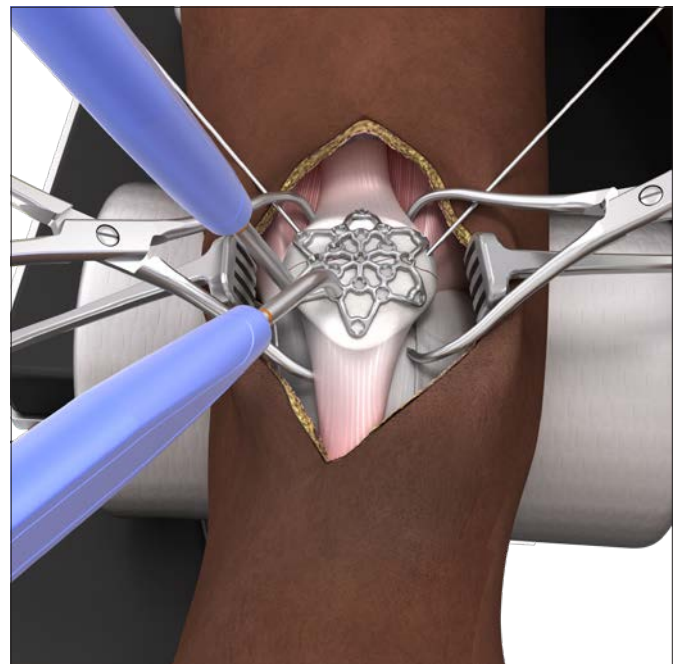
03.137.000	Plate Bending Instrument, Straight
03.137.001	Plate Bending Instrument, Curved

---

**Note:** A well-contoured plate compressed to the bone supports stable fixation and minimizes prominence of the plate.

**Precaution:** Using adjacent holes, bend the plate between the VA locking holes. Do not deform the threaded part of the holes or overbend the plates during bending as this may adversely affect insertion of VA locking screws.

**Warning:** Do not bend the plate beyond what is required to match the anatomy. Reverse bending or use of the incorrect instrumentation for bending may weaken the plate and lead to premature plate failure.



## 7. Plate cutting (optional)

Cut the plate as needed to address the fracture pattern and patient anatomy.

Use the plate file to help smooth sharp edges of the plate which may result from cutting.

---

### Instruments

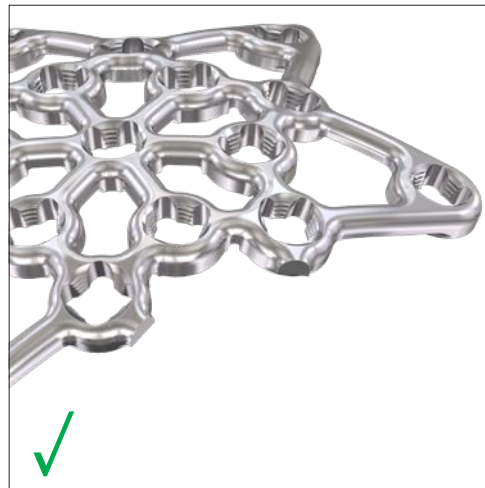
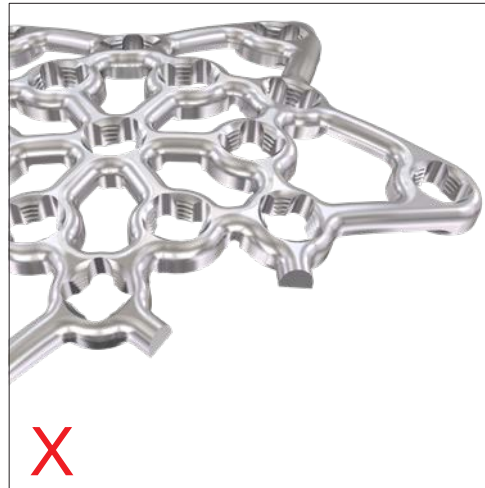
391.940	Wire Cutter, long, length 230 mm
03.500.020	File, with Hexagonal Coupling
311.006	Handle, medium, with Hexagonal Coupling

---

### Warnings

- Failure to smooth sharp edges may result in user injury or soft tissue irritation for the patient.
- Do not cut the body of the plate to prevent compromising the structural integrity of the plate.

**Precaution:** To help avoid soft tissue irritation, cut as close as possible to the distal hole without damaging the VA hole.



## 8. Provisional plate fixation

Maintain fracture reduction using Kirschner wires or reduction forceps. Position the plate over the patella, ensuring appropriate placement according to the fracture pattern and patient anatomy. Provisionally fixate the plate using 1.6 mm threaded compression wires.

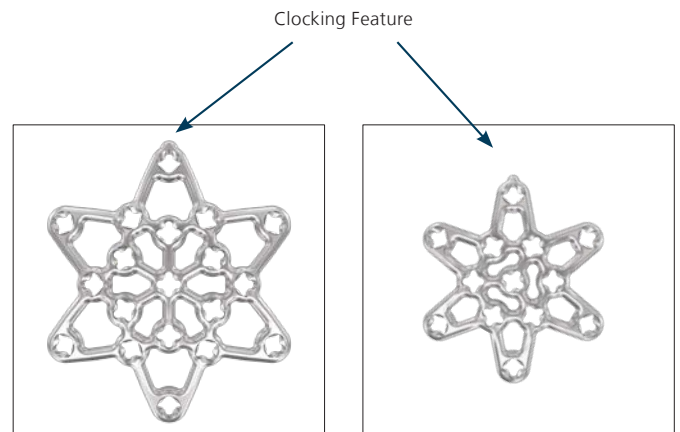
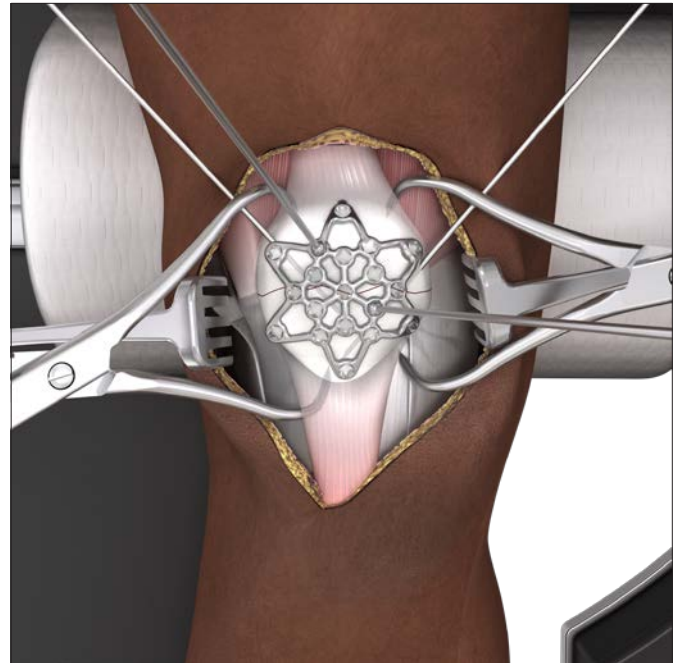
Verify proper reduction after achieving provisional fixation.

### Instruments

03.211.410.01	Compression Wire Ø 1.6 mm, length 150 mm, thread length 10 mm
292.160	Kirschner Wire Ø 1.6 mm with trocar tip, length 150 mm, Stainless Steel

### Notes

- **Alignment of the extensor mechanism with bony anatomy should be considered when placing the plate.**
- **Core plates feature a clocking feature to help maintain orientation while contouring.**



---

## **9. Screw insertion**

Using the appropriate instruments, drill pilot holes for variable angle locking screws and perform screw insertion.

## 9a. Drill using predefined nominal angle technique and measure depth

### Instruments for Ø 2.7 mm Variable Angle Locking Screws

03.133.008	Threaded Drill Guide 2.0 mm for Screw 2.7 mm, for VA and LCP
03.133.101	Drill Bit Ø 2.0 mm, Quick Coupling, length 140 mm, Calibration 60 mm
03.118.007	Depth Gauge, percutaneous

VA locking screws can be inserted into the plate at the predefined hole angle.

Insert and lock the tip of the Threaded Guide for 2.7 mm Screws into the VA locking hole. The Threaded Guide will self retain in the VA locking hole.

- ① Drill to the desired depth. Verify the drill bit depth under radiographic imaging.

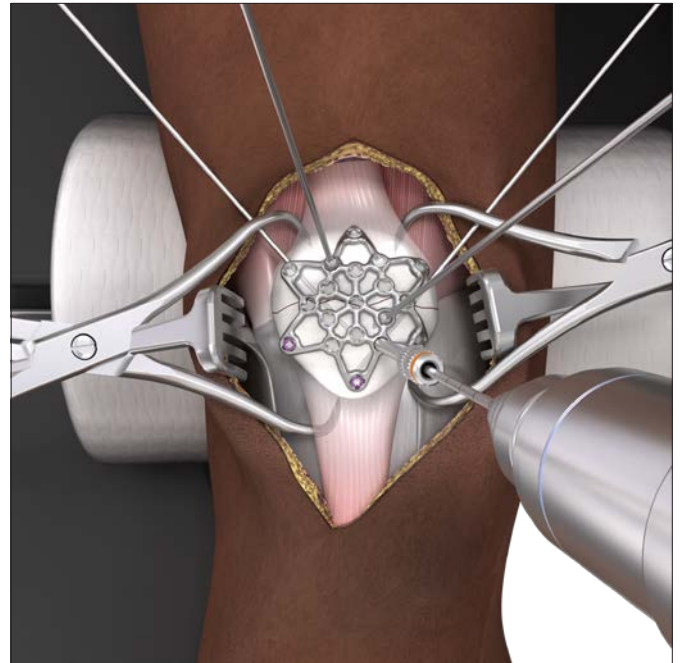
Use the calibrated drill bit or depth gauge to measure for the correct screw length.

### Precautions

- A minimum of two screws per fragment is recommended; however, if this is not possible due to fragment size, after placing a single screw an additional augmentation technique should be considered as described in section 11. Anterior to posterior directed screws should be unicortical and locking.
- Be sure to consider screw trajectory to avoid collision with other screws, Kirschner Wires or other hardware.
- Ensure drill bits do not protrude into the articular surface.

### Warnings

- To achieve the lowest profile construct, do not use cortex screws for anterior to posterior screw fixation.
- 2.4 mm anterior-posterior locking screws may only be used in small, non-load bearing fragments.



## 9b. Drill using variable angle locking technique and measure depth

### Instruments for Ø 2.7 mm Variable Angle Locking Screws

03.133.007	VA Drill Guide 2.7 mm
03.133.101	Drill Bit Ø 2.0 mm, Quick Coupling, length 140 mm, Calibration 60 mm
03.118.007	Depth Gauge, percutaneous

To insert the variable angle locking screw off the nominal axis, insert the cone-shaped drill guide in the desired variable angle locking screw hole in the plate.

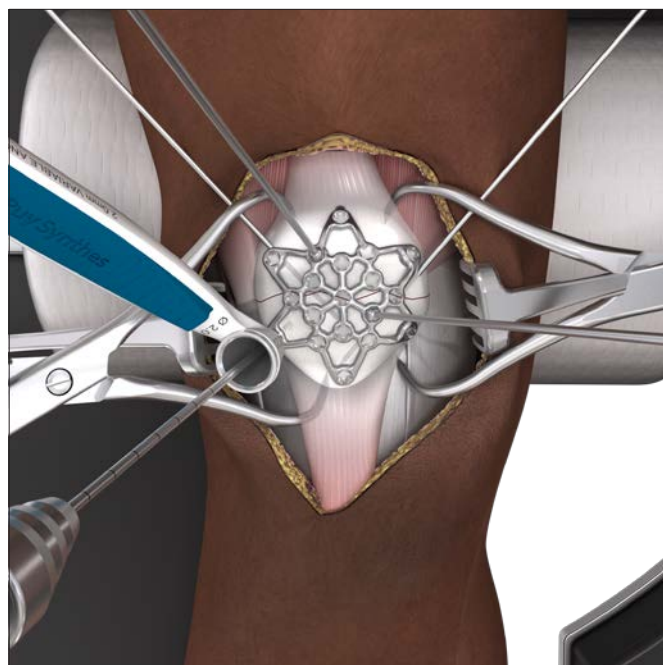
The drill guide cone will self-retain in the hole.

The funnel of the drill guide allows a drilling angle within a 30-degree cone.

When drilling off axis, the drill guide should remain in place and the drill bit may be aimed in any direction within the cone. Use the depth gauge to measure for the correct screw length.

### Precautions

- A minimum of two screws per fragment is recommended; however, if this is not possible due to fragment size, after placing a single screw an additional augmentation technique should be considered as described in section 11. Anterior to posterior directed screws should be unicortical and locking.
- Be sure to consider screw trajectory to avoid collision with other screws, Kirschner Wires or other hardware.
- Free hand drilling is not recommended. It is important not to angulate more than 15 degrees from the central axis of the screw hole. Over angulation may result in difficulty while locking the screw and inadequate screw locking. To ensure that the drill guide is locked correctly, do not angle the drill bit in excess of +/-15 degrees from the nominal trajectory of the hole.
- Ensure drill bits do not protrude into the articular surface.



**Warning:** 2.4 mm anterior-posterior locking screws may only be used in small, non-load bearing fragments.

## 10. Screw placement

### Instruments

03.133.150	Screwdriver Handle, Universal
314.467	Screwdriver Shaft, Stardrive®, T8, self-holding

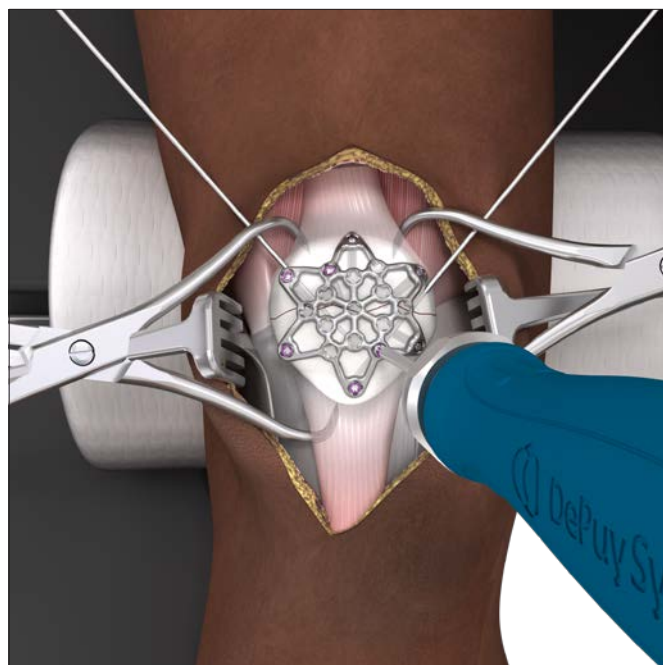
Insert the correct length variable angle locking screw. Insert the screw until the screw head is seated in the variable angle locking hole. Insert additional screws as needed.

### Precautions

- **Do not over-tighten the screws. This allows for the screws to be easily removed should they not be in the desired position.**
- **Ensure screws do not protrude into the articular surface. Use image intensification finger palpation or direct visualization as needed to help confirm that screws do not protrude through the articular surface.**

Confirm proper alignment, screw placement, and screw

- length with multiple views under image intensification.



---

## 10a. Perform final tightening of VA Locking Screws

---

### Instruments for Ø 2.7 mm Variable Angle Locking Screws

---

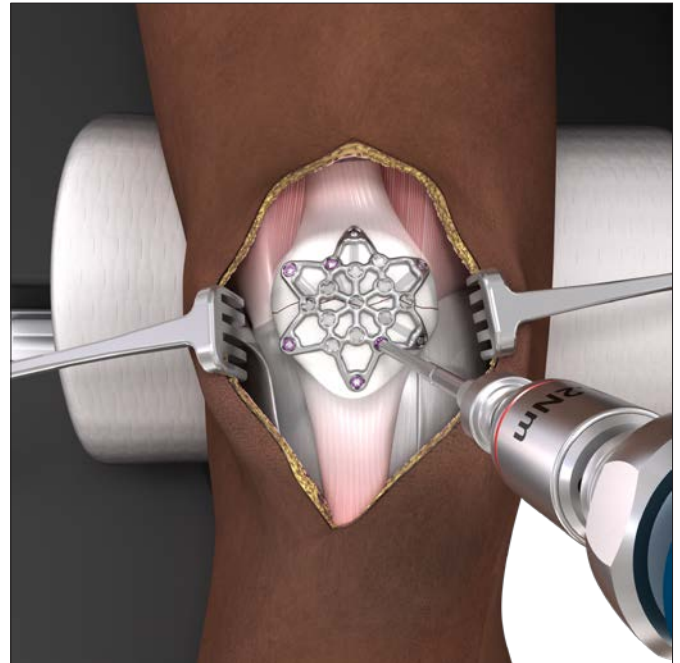
03.133.150	Screwdriver Handle, Universal
03.110.002	Torque Limiter, 1.2 Nm, with AO/ASIF Quick Coupling
314.467	Screwdriver Shaft, Stardrive®, T8, self-holding

---

Use the appropriate torque limiter (TL) to final tighten the variable angle locking screws. Assemble the torque limiter to the T8 StarDrive Screwdriver shaft and the handle for torque limiter.

After appropriate screw angle and length have been determined, manually insert the screw using the TL assembly.

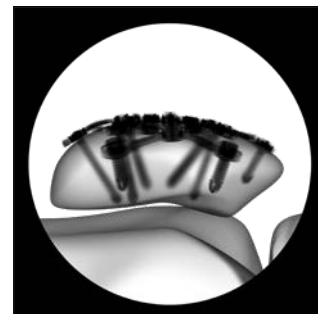
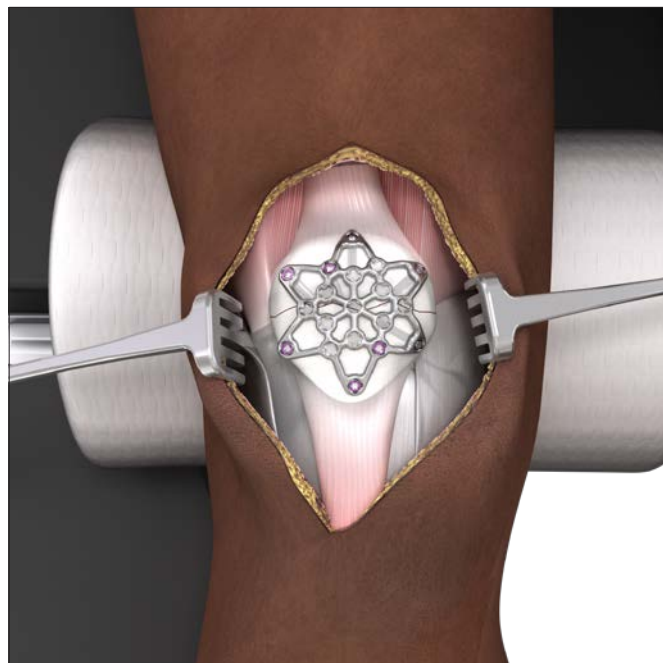
Use of the TL is mandatory when performing final tightening of the screws into variable angle locking holes to ensure the correct amount of torque is applied.



## 11. Verify reduction and fixation stability

- Remove all provisional wires, clamps and confirm final fixation of plate with image intensification.

Perform visual and palpable control of fracture gaps through passive non-aggressive knee flexion/extension.

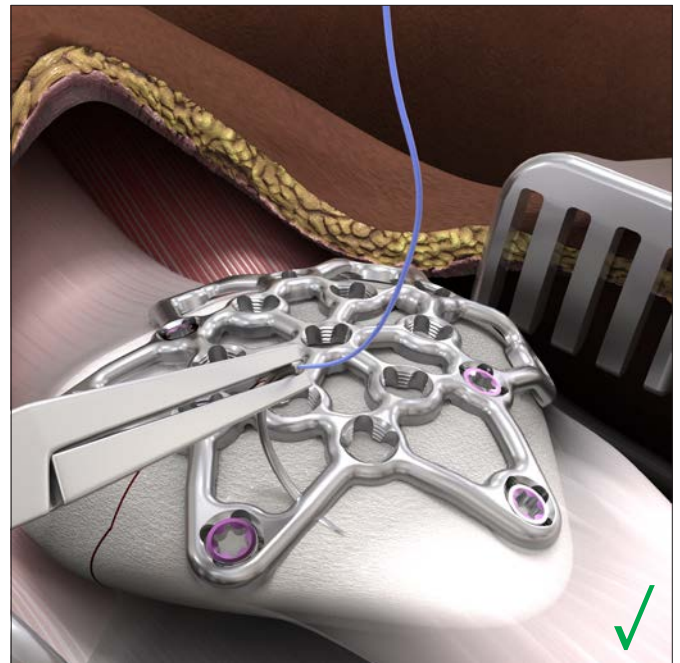


### Soft Tissue Anchoring with Suture

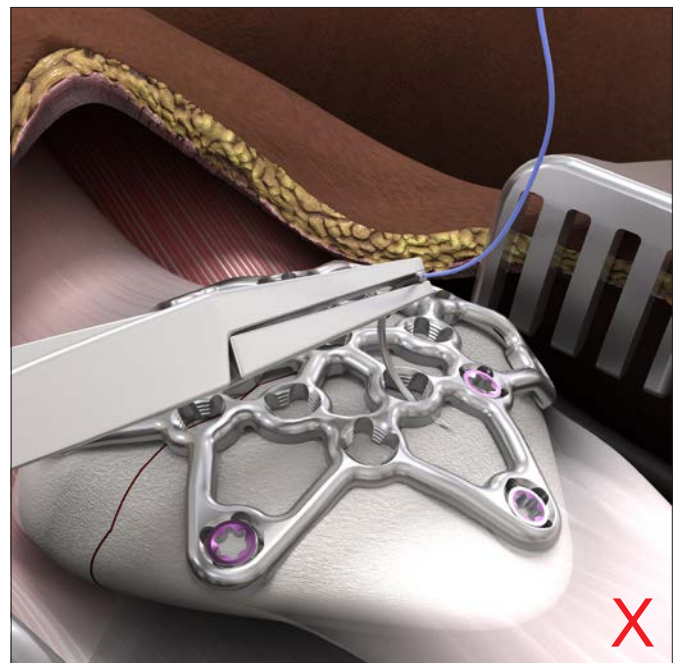
The plate may be used as an anchor point to reapproximate soft tissue. In cases of comminution/inferior bone quality, the Krakow suture or other augmentation techniques should be used.

### Warnings

- An augmentation technique (e.g. with suture, independent lag screws) should be considered for peripheral bone fragment fixation with soft tissue approximation to ensure stability of fragments during bone and soft tissue healing.
- For retinaculum repair, ensure the soft tissue can be anchored without tilting the patella and affecting biomechanics of the joint.
- Suture should be threaded through the windows of the plate, not the VA locking holes. Threads of locking holes can result in suture breakage. Suture should be placed to avoid migration and loosening.



Correct



Incorrect

# Implant Removal

---

## Implant removal

To remove locking screws, first unlock all screws from the plate, then remove the screws completely from the bone.

---

## Instruments

---

314.467	Screwdriver Shaft, Stardrive®, T8, self-holding
03.133.150	Screwdriver Handle, Universal

---

**Warning:** To remove implant, first unlock all locking screws before removing them completely, otherwise the plate may rotate and damage the soft tissue.

# Plates

---

02.137.000S VA Locking Patella Plate 2.7, anterior, core, small, Stainless Steel, sterile

---

02.137.001S VA Locking Patella Plate 2.7, anterior, 3-hole, small, Stainless Steel, sterile

---

02.137.002S VA Locking Patella Plate 2.7, anterior, 6-hole, small, Stainless Steel, sterile

---

02.137.003S VA Locking Patella Plate 2.7, anterior, core, Stainless Steel, sterile

---

02.137.004S VA Locking Patella Plate 2.7, anterior, 3-hole, Stainless Steel, sterile

---

02.137.005S VA Locking Patella Plate 2.7, anterior, 6-hole, Stainless Steel, sterile

---

04.137.000S VA Locking Patella Plate 2.7, anterior, core, small, Titanium (TiCP), sterile

---

04.137.001S VA Locking Patella Plate 2.7, anterior, 3-hole, small, Titanium (TiCP), sterile

---

04.137.002S VA Locking Patella Plate 2.7, anterior, 6-hole, small, Titanium (TiCP), sterile

---

04.137.003S VA Locking Patella Plate 2.7, anterior, core, Titanium (TiCP), sterile

---

04.137.004S VA Locking Patella Plate 2.7, anterior, 3-hole, Titanium (TiCP), sterile

---

04.137.005S VA Locking Patella Plate 2.7, anterior, 6-hole, Titanium (TiCP), sterile

# Screws

## Variable Angle Locking Screws Ø 2.7 mm

02.211.010S– VA Locking Screw Stardrive Ø 2.7 mm  
02.211.060S self-tapping, length 10–60 mm, Stainless Steel, Sterile

04.211.010S– VA Locking Screw Stardrive Ø 2.7 mm  
04.211.060S self-tapping, length 10–60 mm, TAN, Sterile

Threaded, rounded head locks securely into the threaded VA locking holes to provide angular stability at angles determined by the surgeon.

**Note:** For final locking, the 1.2 Nm TLA torque limiting attachment is required.



## Cortex Screws Ø 2.7 mm

201.870S– Cortex Screw Stardrive Ø 2.7 mm,  
202.900S self-tapping, length 10–40 mm, Stainless Steel, Sterile

202.962S– Cortex Screw Stardrive Ø 2.7 mm,  
202.969S self-tapping, length 42–60 mm, Stainless Steel, Sterile

402.870S– Cortex Screw Stardrive Ø 2.7 mm,  
402.900S self-tapping, length 10–40 mm, TAN, Sterile

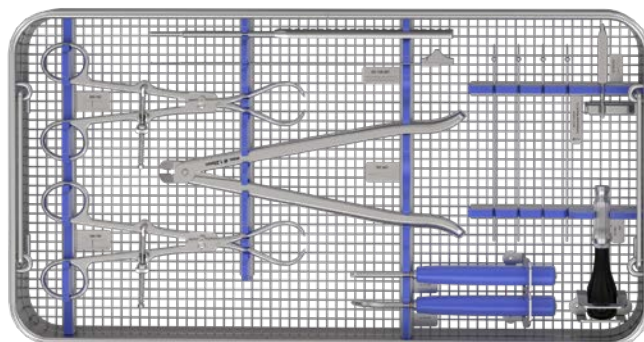
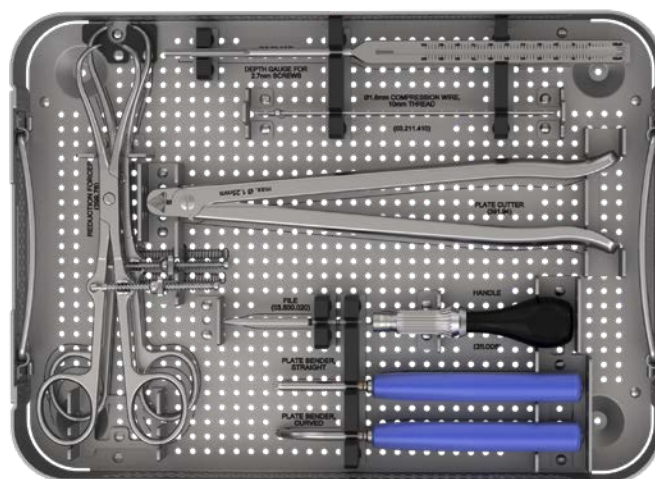
402.962S– Cortex Screw Stardrive Ø 2.7 mm,  
402.969S self-tapping, length 42–60 mm, TAN, Sterile



# Instruments and Cases

## Patella Instrument Set

391.940	Wire Cutter, long, length 230 mm
03.137.000	Plate Bending Instrument, Straight
03.137.001	Plate Bending Instrument, Curved
03.211.410.01	Compression Wire Ø 1.6 mm, length 150 mm, thread length 10 mm
399.780	Reduction Forceps, large, with Points, speed lock, length 200 mm
03.118.007	Depth Gauge, percutaneous
311.006	Handle, medium, with Hexagonal Coupling
03.500.020	File, with Hexagonal Coupling
60.137.000	Tray for Patella Instruments
60.133.110	Lid for Tray, 2/3 Width
68.137.000	Patella NTOC Cassette*



\* Manufactured by: NTOC medische techniek B.V., Tubanteweg 21, 5349 BE Oss, The Netherlands  
 Distributed by: Synthes GmbH, Eimattstrasse 3, 4436 Oberdorf, Switzerland

**Additionally Available****VA Locking Screws Ø 2.4 mm**

02.210.106S– VA Locking Screw Stardrive Ø 2.4 mm,  
02.210.140S self-tapping, length 6–40 mm,  
Stainless Steel, Sterile

02.210.142S– VA Locking Screw Stardrive Ø 2.4 mm,  
02.210.160S self-tapping, length 42–60 mm,  
Stainless Steel, Sterile

04.210.106S– VA Locking Screw Stardrive Ø 2.4 mm,  
04.210.140S self-tapping, length 6–40 mm,  
TAN, Sterile

04.210.142S– VA Locking Screw Stardrive Ø 2.4 mm,  
04.210.160S self-tapping, length 42–60 mm,  
TAN, Sterile

**Cortex Screws Ø 2.4 mm**

201.756S– Cortex Screw Stardrive Ø 2.4 mm,  
201.790S self-tapping, length 6–40 mm,  
Stainless Steel, Sterile

02.210.942S– Cortex Screw Stardrive Ø 2.4 mm,  
02.210.960S self-tapping, length 42–60 mm,  
Stainless Steel, Sterile

401.756S– Cortex Screw Stardrive Ø 2.4 mm,  
401.790S self-tapping, length 6–40 mm,  
TAN, Sterile

04.210.942S– Cortex Screw Stardrive Ø 2.4 mm,  
04.210.960S self-tapping, length 42–60 mm,  
TAN, Sterile

310.509 Drill Bit Ø 1.8 mm with marking, length  
110/85mm, 2-flute, for Quick Coupling

310.530 Drill Bit Ø 2.4 mm, length 100/75 mm,  
2-flute, for Quick Coupling

312.180 Double Drill Guide 2.4/1.8

323.202 Universal Drill Guide 2.4

314.467 Screwdriver Shaft, Stardrive, T8,  
self-holding

03.110.023 VA-LCP Drill Sleeve Ø 2.4, conical,  
for Drill Bits 1.8 mm

03.110.024 VA-LCP Drill Sleeve Ø 2.4, coaxial,  
for Drill Bits 1.8 mm

03.111.038 Handle with Quick Coupling

319.006 Depth Gauge for Screws Ø 2.0 mm and  
2.4 mm, measuring range up to 38 mm

391.940	Wire Cutter, long, length 230 mm	
03.137.000	Plate Bending Instrument, Straight	
03.137.001	Plate Bending Instrument, Curved	
311.006	Handle, medium, with Hexagonal Coupling	
03.500.020	File, with Hexagonal Coupling	
03.211.410.01	Compression Wire Ø 1.6 mm, length 150 mm, thread length 10 mm	
03.118.007	Depth Gauge, percutaneous	

03.133.008 Threaded Drill Guide 2.0 mm for Screw 2.7 mm, for VA and LCP



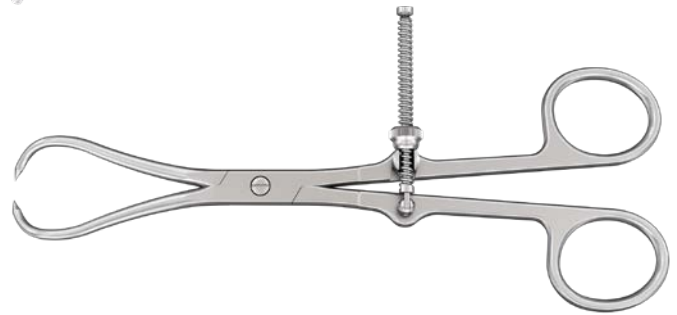
03.133.101 Drill Bit Ø 2.0 mm, Quick Coupling, length 140 mm, Calibration 60 mm



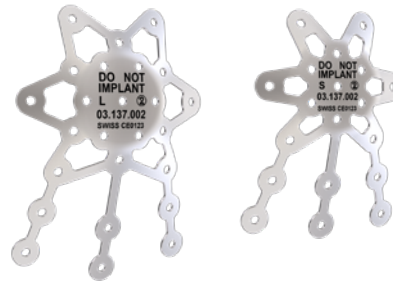
03.133.007 VA Drill Guide 2.7 mm



399.780 Reduction Forceps, large, with Points, speed lock, length 200 mm



03.137.002S Patella Template Kit, Anterior, Sterile



314.467 Screwdriver Shaft, Stardrive®, T8, self-holding



03.110.002 Torque Limiter, 1.2 Nm, with AO/ASIF Quick Coupling



03.133.150 Screwdriver Handle, Universal



# MRI Information

---

## Magnetic Resonance Environment

### **Torque, Displacement and Image Artifacts according to ASTM F 2213-06, ASTM F 2052-14 and ASTM F 2119-07**

Non-clinical testing of worst case scenario in a 3 T MRI system did not reveal any relevant torque or displacement of the construct for an experimentally measured local spatial gradient of the magnetic field of 3.69 T/m. The largest image artifact extended approximately 169 mm from the construct when scanned using the Gradient Echo (GE). Testing was conducted on a 3 T MRI system.

### **Radio-Frequency-(RF-) induced heating according to ASTM F 2182-11a**

Non-clinical electromagnetic and thermal testing of worst case scenario lead to peak temperature rise of 9.5 °C with an average temperature rise of 6.6 °C (1.5 T) and a peak temperature rise of 5.9 °C (3 T) under MRI Conditions using RF Coils (whole body averaged specific absorption rate [SAR] of 2 W/kg for 6 minutes [1.5 T] and for 15 minutes [3 T]).

## Precautions

The above-mentioned test relies on non-clinical testing. The actual temperature rise in the patient will depend on a variety of factors beyond the SAR and time of RF application. Thus, it is recommended to pay particular attention to the following points:

- It is recommended to thoroughly monitor patients undergoing Magnetic Resonance (MR) scanning for perceived temperature and/or pain sensations.
- Patients with impaired thermoregulation or temperature sensation should be excluded from MR scanning procedures.
- Generally, it is recommended to use a MR system with low field strength in the presence of conductive implants. The employed specific absorption rate (SAR) should be reduced as far as possible.
- Using the ventilation system may further contribute to reduce temperature increase in the body.





