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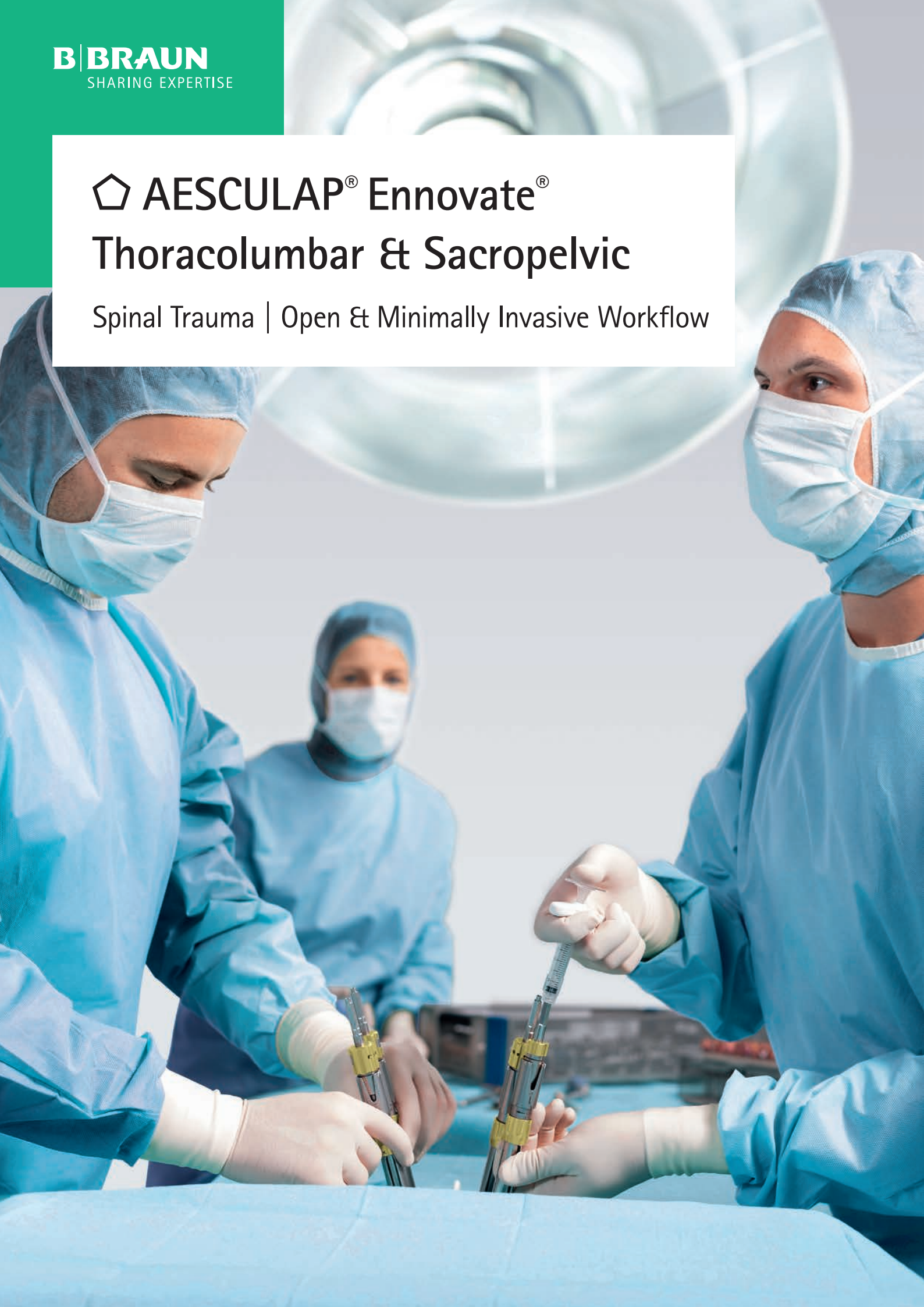
SHARING EXPERTISE

AESCULAP® Ennovate® Thoracolumbar & Sacropelvic

Spinal Trauma | Open & Minimally Invasive Workflow



AESCULAP® Ennovate®

Spinal Trauma

Part of the AESCULAP®

Ennovate® platform

Ennovate® is the epitome of the most advanced spinal platform provided by AESCULAP®. This modular platform leverages spinal fusion on a whole new level by placing the patient in the center of the treatment and allowing the surgeon to perform uncompromising spinal corrections across all surgeries. From the cervical to the sacropelvic spine, Ennovate® enhances intraoperative flexibility, while adapting to your personal needs.

The Ennovate® Thoracolumbar & Sacropelvic modules are empowered by **Ennovate® PolyLock®** and **Ennovate® PentaCore®**, with which surgical versatility and intraoperative experiences reach new heights. Inspired by human anatomy and clinical workflows the Ennovate® Thoracolumbar & Sacropelvic modules enable for the best possible clinical outcome – with true:

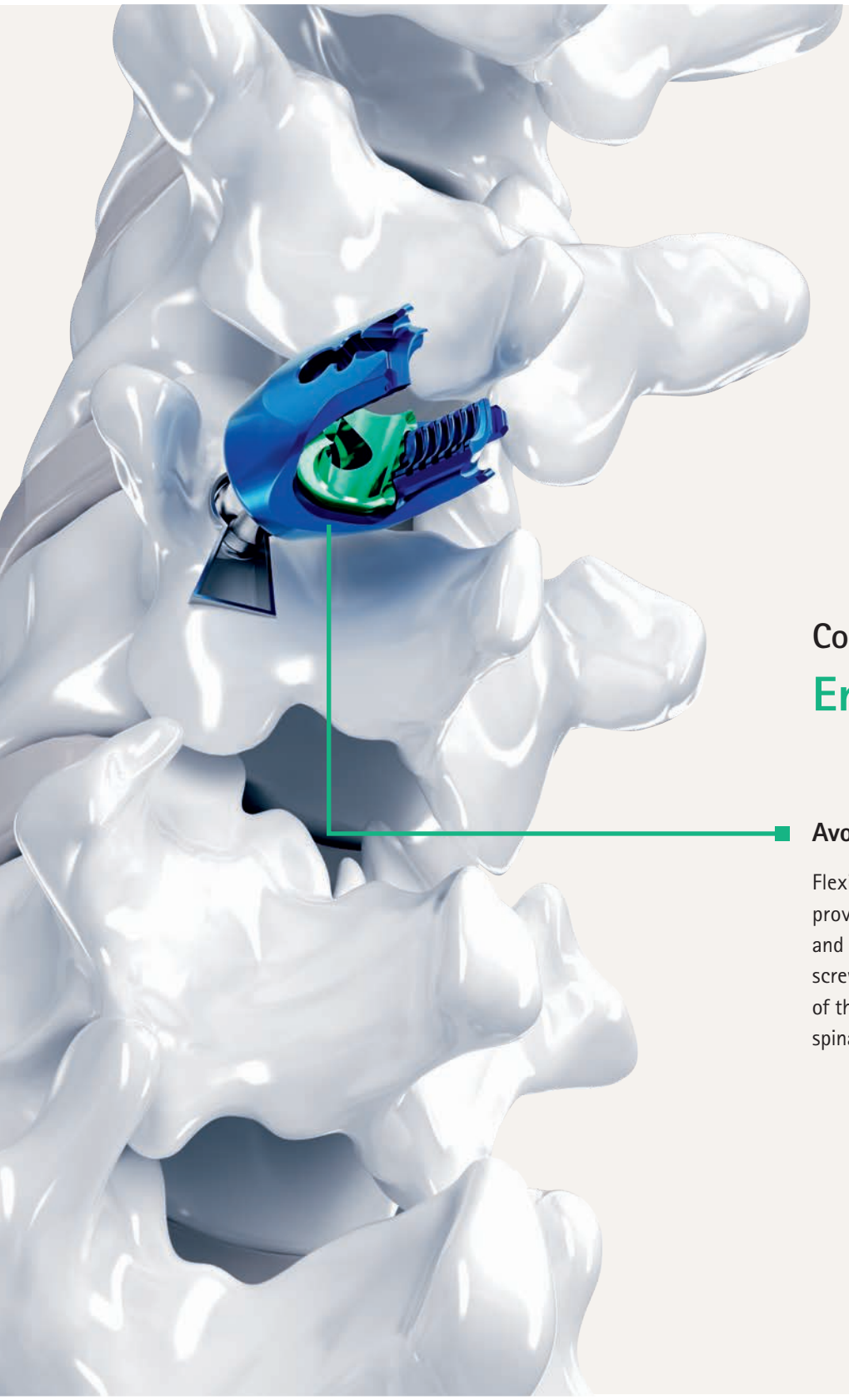
solutions beyond fusion.

Note | This surgical manual is intended to assist as a guide for corrective techniques using Ennovate® in spinal fractures. Instrumented levels and the combination of implants with instruments should be tailored to the pathology of the patient and the desired treatment concept of the treating surgeon.

Content

AESCULAP® Ennovate®

Spinal Trauma – Ennovate® PolyLock® & PentaCore®

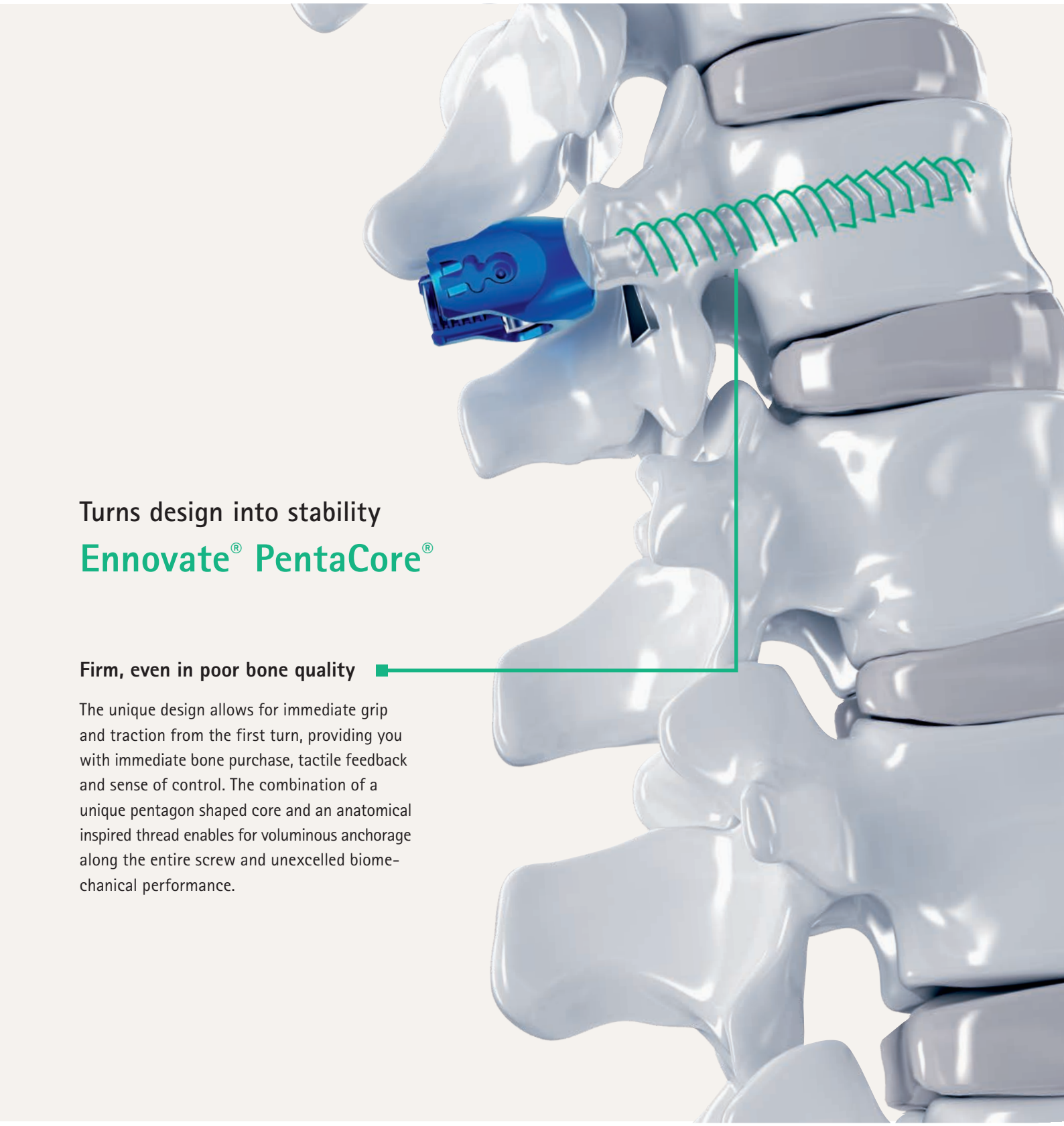


Control is key

Ennovate® PolyLock®

Avoids loss of correction

Flexibility at its best – the Ennovate® screw provides excellent intra-operative flexibility and high versatility by integrating multiple screw attributes in one design. The expansion of the implant functionality enables unexcelled spinal correction maneuvers.



Turns design into stability

Ennovate® PentaCore®

Firm, even in poor bone quality

The unique design allows for immediate grip and traction from the first turn, providing you with immediate bone purchase, tactile feedback and sense of control. The combination of a unique pentagon shaped core and an anatomical inspired thread enables for voluminous anchorage along the entire screw and unexcelled biomechanical performance.

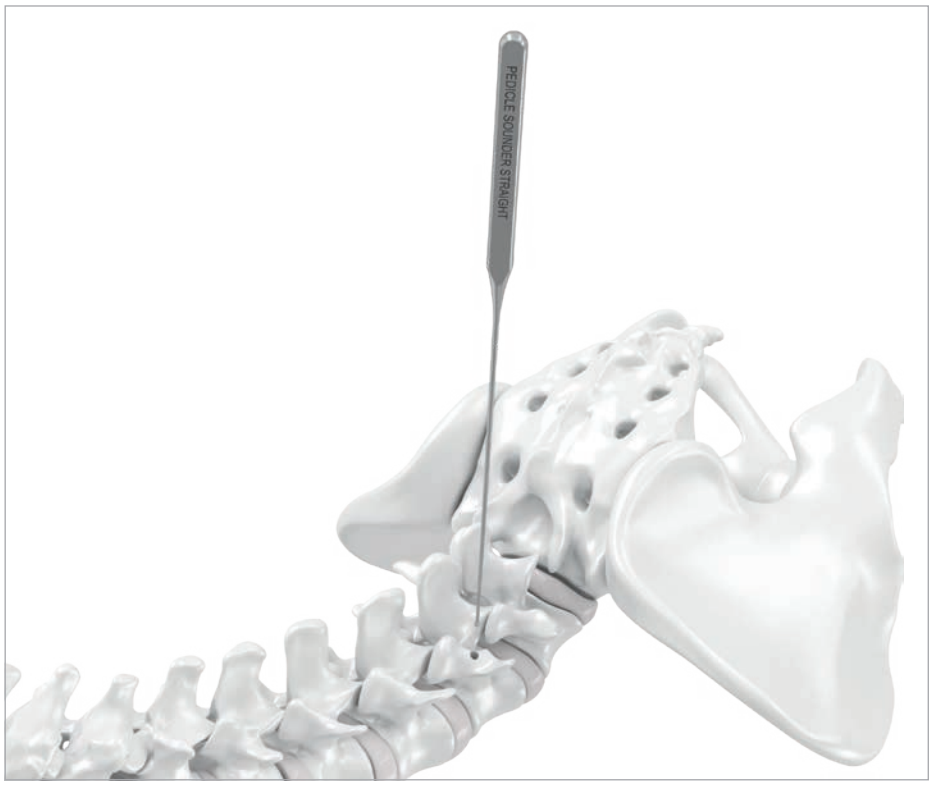
AESCULAP® Ennovate®

1 | Pedicle Preparation – Open Workflow

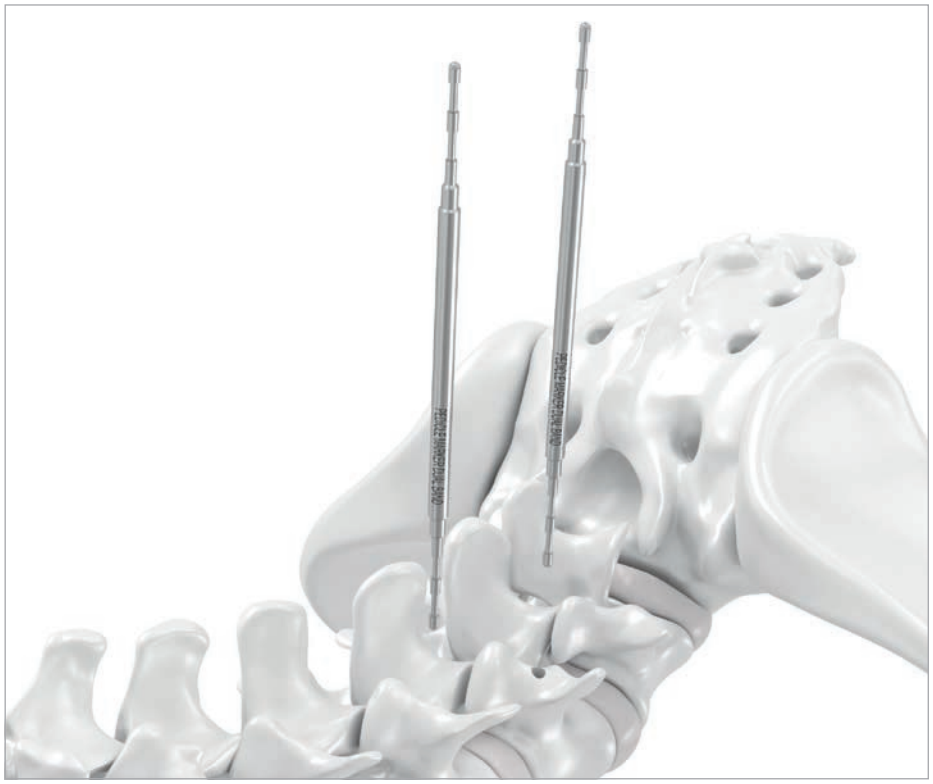
Pedicle Preparation

- Identify the appropriate spinal landmarks for initiating cortex perforation.
- The perforation of the cortex is created with a Pedicle Awl.

- The perforation is followed by a Pedicle Probe to open the pedicle canal.
- All Pedicle Probes provide depth markings from 30 to 110 mm, in 10 mm increments, to determine the advancement into the pedicle canal.
- The Pedicle Probes are available as straight or curved Lumbar Probes/ Thoracic Probes.
- Large Pedicle Probes are available for lumbar pedicle preparation, in combination with pedicle screws with a diameter starting from 5.5 mm.



- Utilize a Pedicle Sounder to verify the integrity of the pedicle and vertebral body cortex.

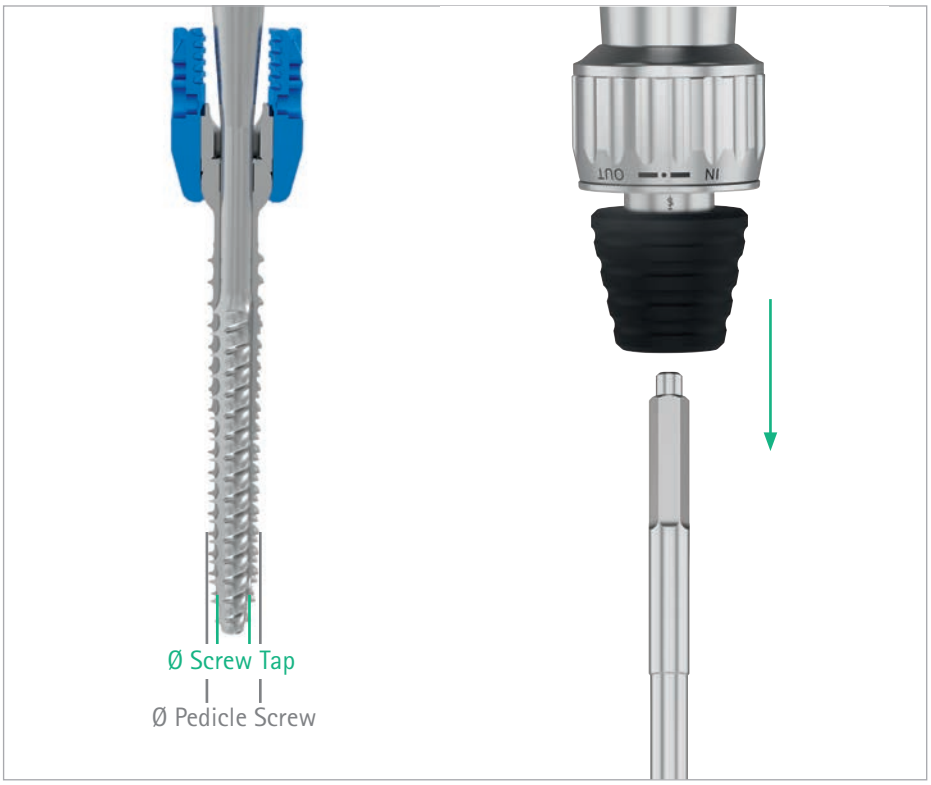


- If necessary, Pedicle Markers can be used as placeholders during pedicle preparation or for identification of proper anatomic location on the intra-operative imaging.

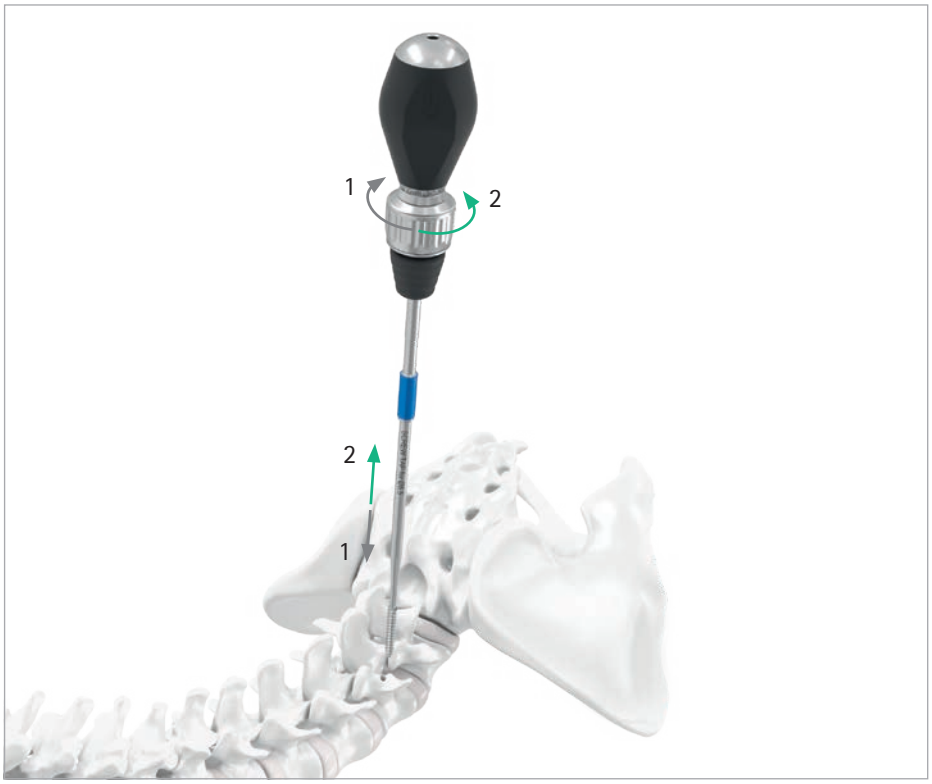
1 | Pedicle Preparation – Open Workflow

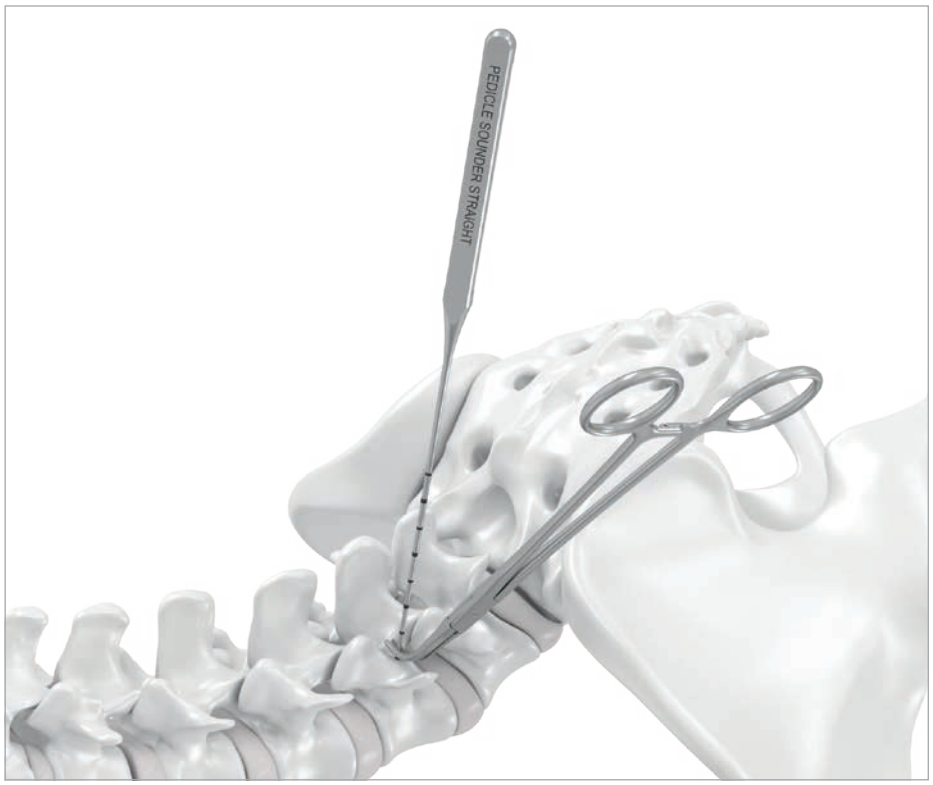
Bone Tapping

- Screw Taps are undersized by 0.25 mm of the final pedicle screw diameter.
- For pedicle screw diameters 7.5 mm and larger it is recommended to apply a sequential tapping procedure, starting with a smaller tap and increasing the diameter stepwise until the desired diameter is reached.
- Attach the desired handle to the Screw Tap by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop.
- The ratcheting handles can be moved between forward (IN), locked (•) and reverse (OUT) positions by rotating the collar of the handle.



- Switch the ratchet to the forward (IN) position (1), apply the instrument to the prepared entry point and advance the tap to the desired depth by turning the handle clockwise.
- Once the pedicle has been tapped to the desired depth, switch the ratchet to the reverse (OUT) position (2) and turn the handle counter-clockwise.
- Utilize the Pedicle Sounder to verify the integrity of the pedicle and vertebral body cortex.
- Remove the Screw Tap from the handle by pulling the black collar backwards and then removing the Screw Tap.





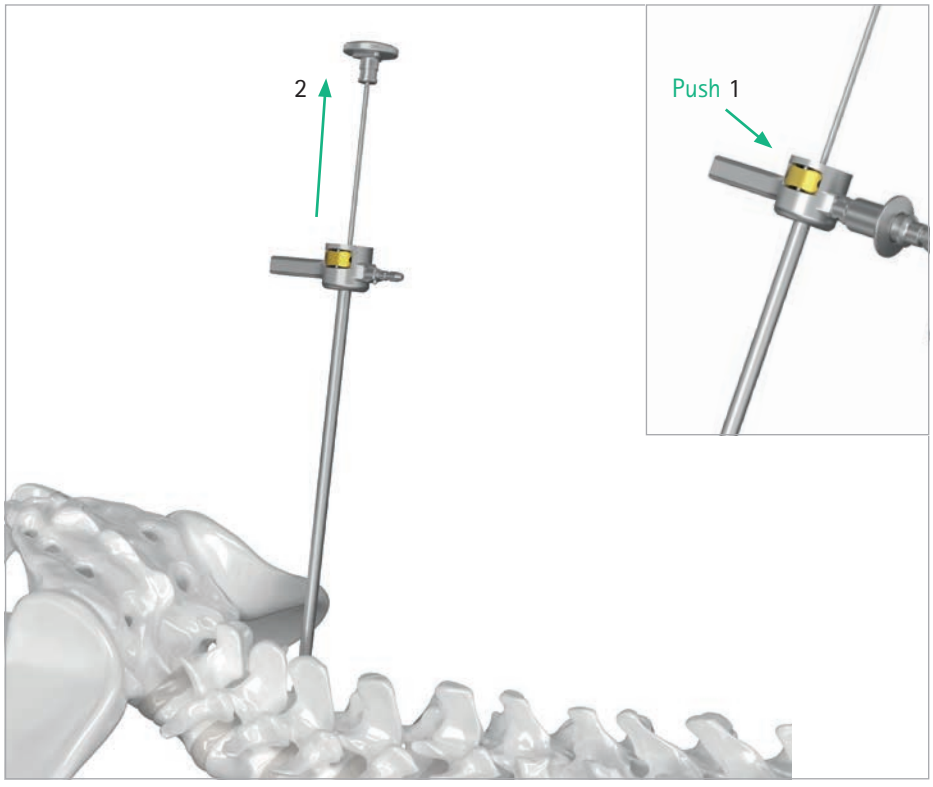
- To determine the appropriate pedicle screw length palpate the prepared pedicle canal with a Pedicle Sounder.
- Clamp a hemostat to the exposed Pedicle Sounder and measure the length using the markings on the Pedicle Sounder.
- Select the appropriate pedicle screw diameter and length based on pre-operative planning and intra-operative measuring.

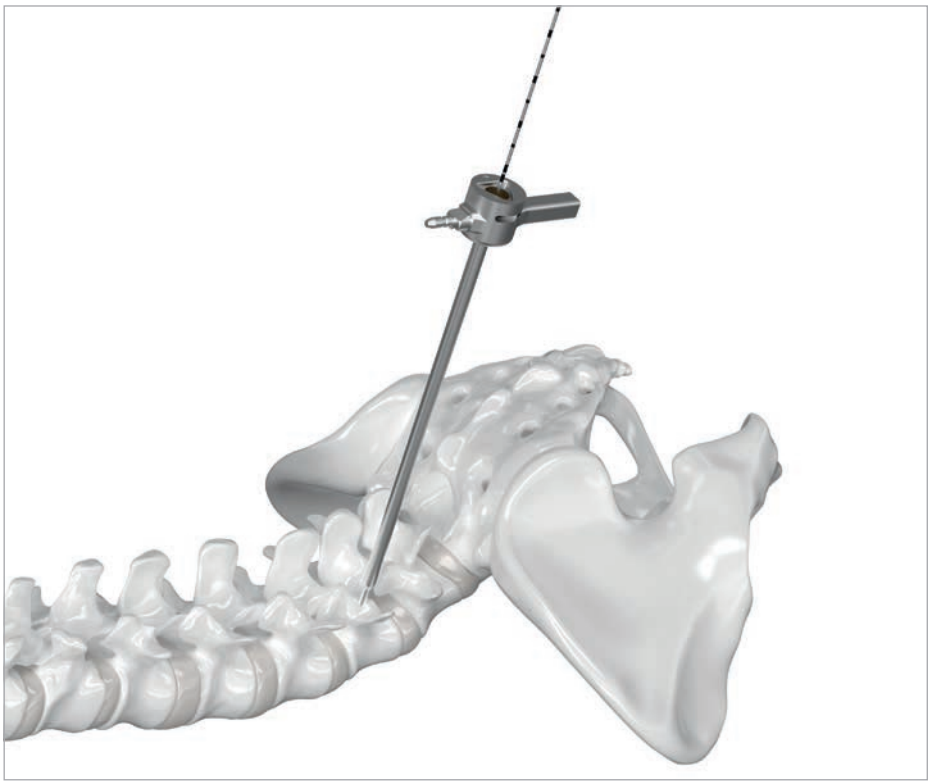
2 | Pedicle Preparation – MIS Workflow

Pedicle Preparation

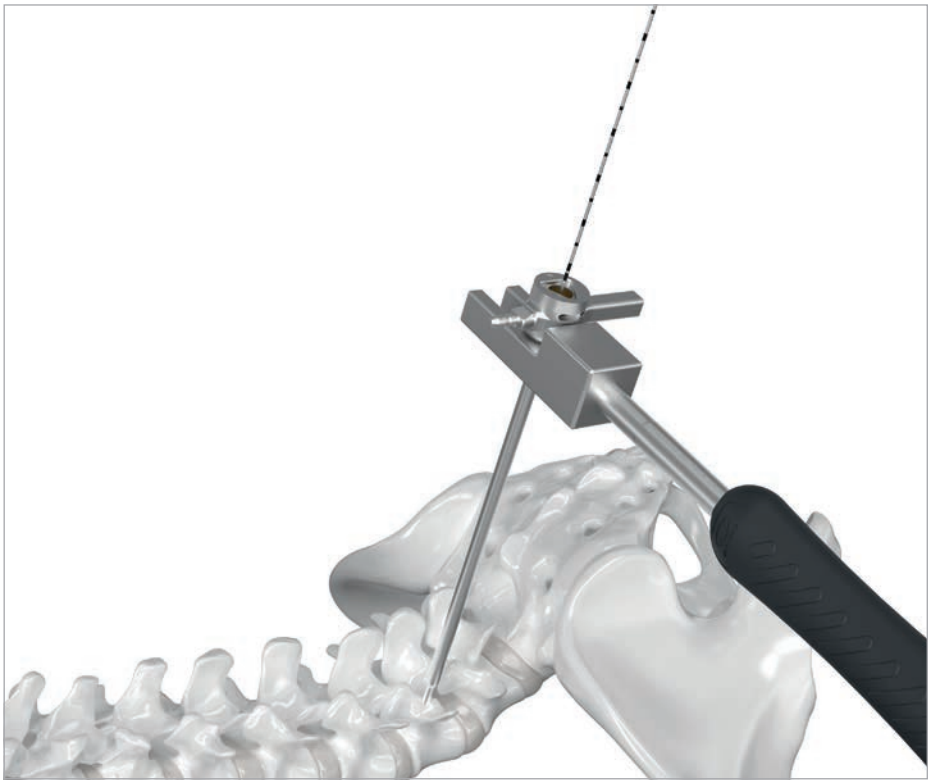
- After determining the entry point of the pedicle screw and the surgical trajectory, an incision in the skin and the fascia can be performed.
- The perforation of the cortex is created with either the single-use or re-usable Bone Access Needle.
- The Bone Access Needle consists of two parts, a Bone Access Needle Handle and a Bone Access Needle Trocar which is located inside the sleeve of the Bone Access Needle Handle.

- After cortex perforation, push the golden button (1) and remove the Bone Access Needle Trocar (2). Ensure that the Bone Access Needle Handle remains in position.
- The placement of the Bone Access Needle tip shall be confirmed using intra-operative imaging prior to pedicle screw placement.





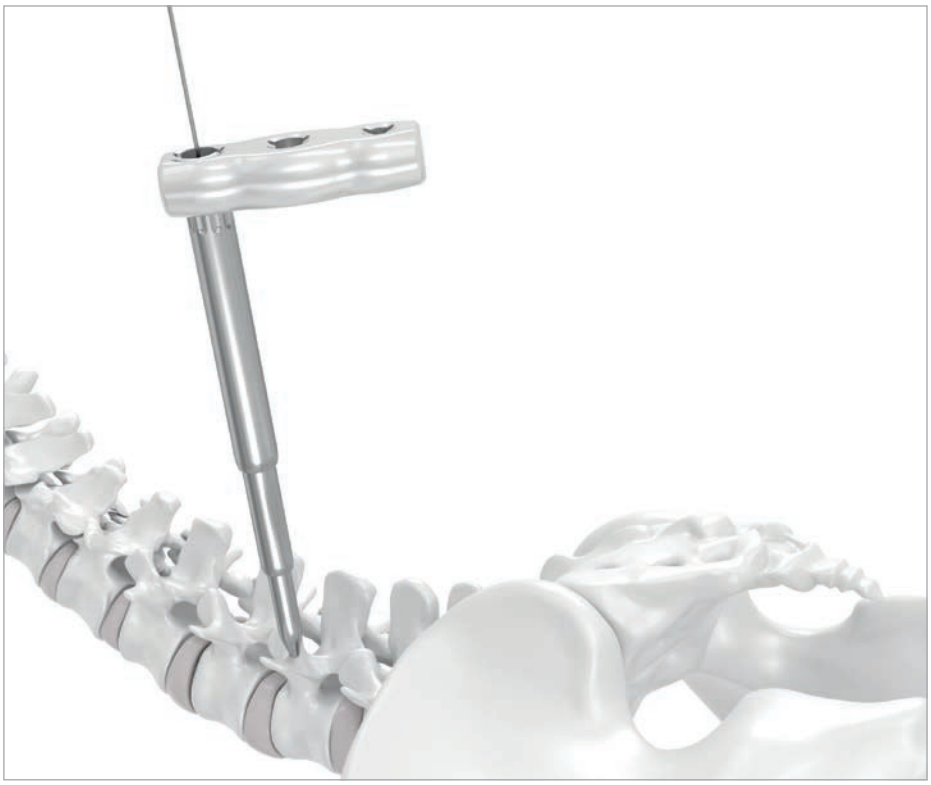
- The Guide Wire is introduced through the canulation of the Bone Access Needle Handle, using the Guide Wire Forceps and Slotted Hammer.
- Ensure the roughened tip of the Guide Wire is placed inside the vertebra. The Guide Wire should be introduced so its distal tip represents the end position of the pedicle screw tip.
- While introducing the Guide Wire, ensure that the tip of the Guide Wire does not penetrate the anterior wall of the vertebral body.
- The placement of the Guide Wire tip shall be confirmed using intra-operative imaging prior to pedicle screw placement.



- Remove the Bone Access Needle Handle by pulling it off the patient. If needed, the Slotted Hammer can be used.
- Ensure that the Guide Wire is held firmly in place during the removal of the Bone Access Needle Handle.

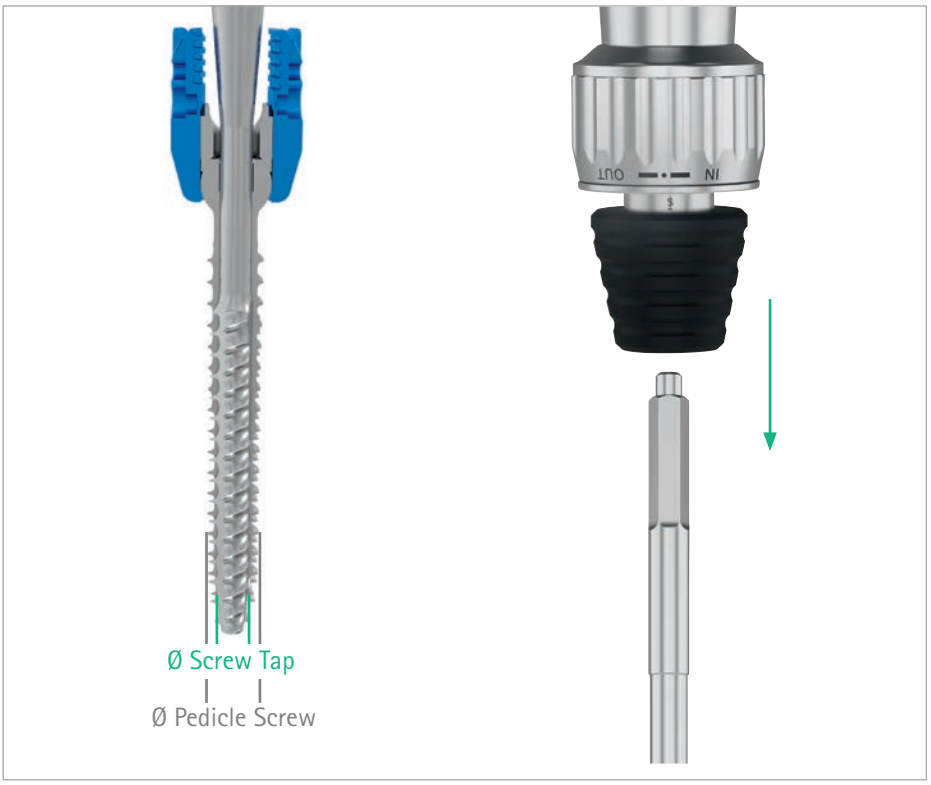
2 | Pedicle Preparation – MIS Workflow

- The fascia and muscles should be dilated to allow pedicle screw placement with the FRI Downtube.
- Hold the Guide Wire firmly in place and slide the Dilators over the Guide Wire in sequence. The Dilators should be docked on bony anatomy to minimize tissue impingement.
- If needed, the Dilator Handle may be attached to the Dilator to facilitate introduction.



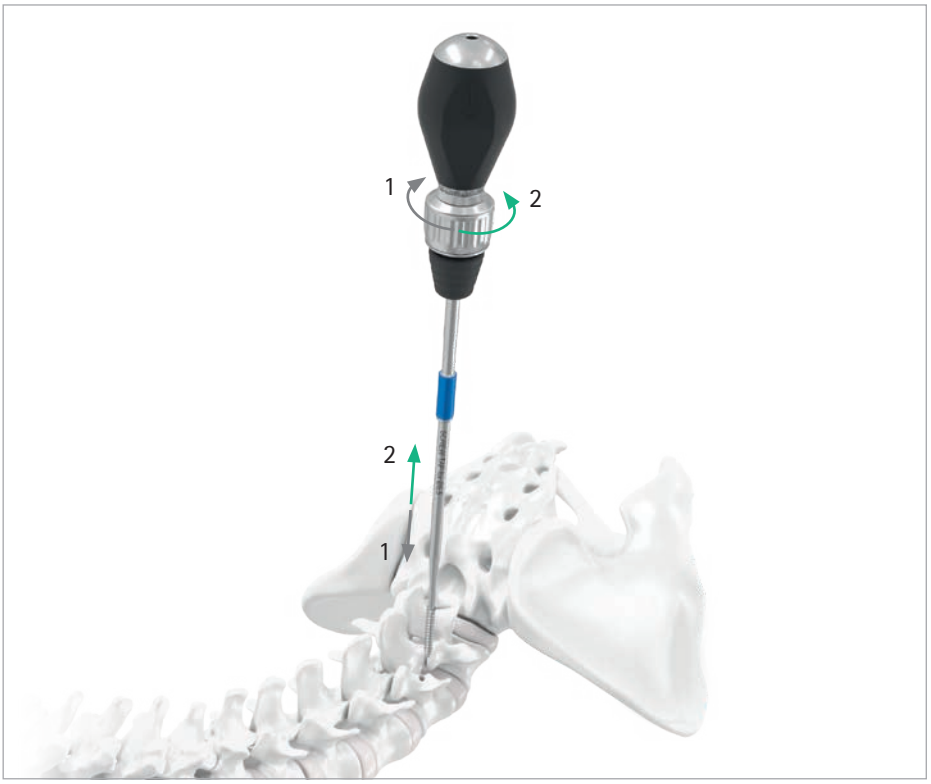
If preferred, the perforation is followed by a canulated Pedicle Probe to open the pedicle canal.

- The Medium Dilator can be used as a working port during pedicle canal preparation.
- The canulated Pedicle Probe is intended for use in combination with pedicle screws with a diameter starting from 5.5 mm.
- The canulated Pedicle Probe provides depth markings from 30 to 80 mm, in 10 mm increments, for additional visual confirmation of the advancement into the pedicle canal.



Bone Tapping

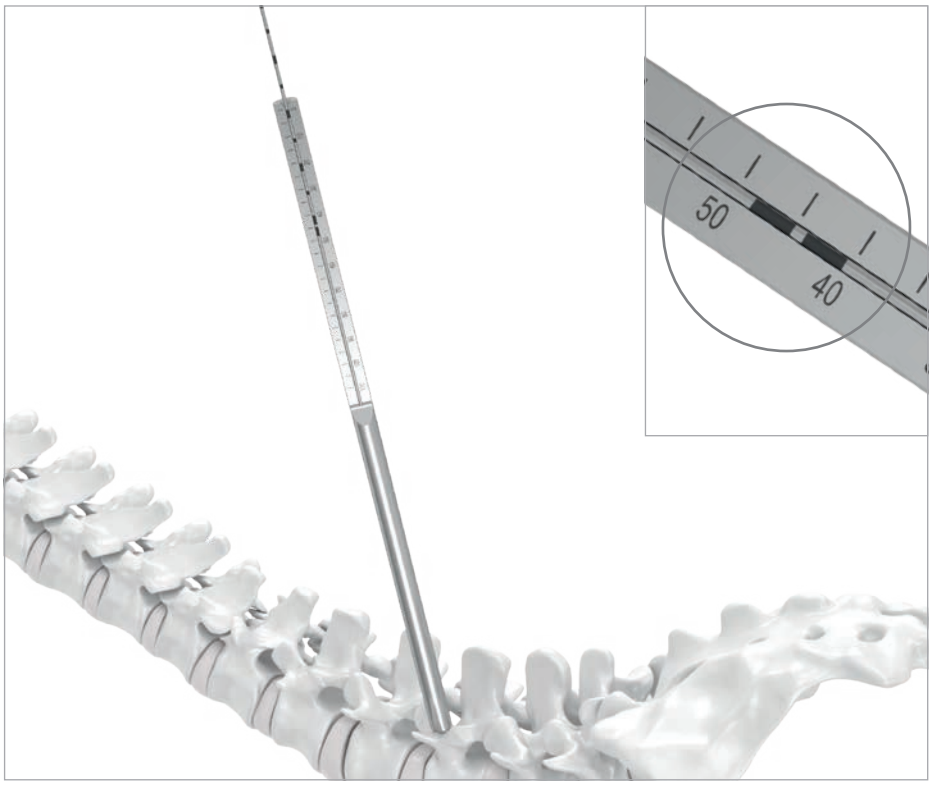
- Screw Taps are undersized by 0.25 mm of the final pedicle screw diameter.
- For pedicle screw diameters 7.5 mm and larger it is recommended to apply a sequential tapping procedure, starting with a smaller tap and increasing the diameter stepwise until the desired diameter is reached.
- Attach the desired handle to the Screw Tap by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop.
- The ratcheting handles can be moved between forward (IN), locked (•) and reverse (OUT) positions by rotating the collar of the handle.



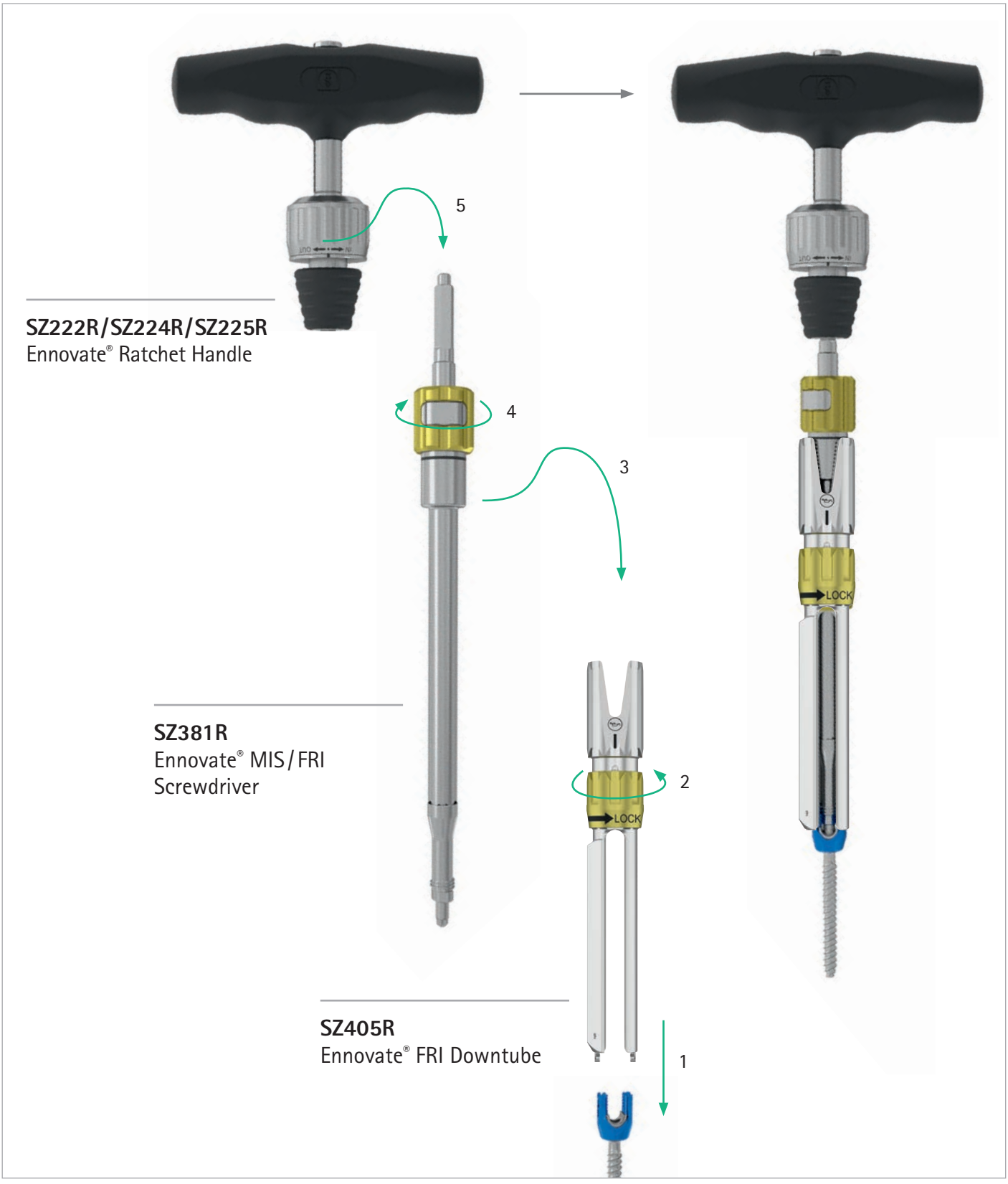
- Switch the ratchet to the forward (IN) position (1), apply the instrument to the prepared entry point and advance the tap to the desired depth by turning the handle clockwise.
- Once the pedicle has been tapped to the desired depth, switch the ratchet to the reverse (OUT) position (2) and turn the handle counter-clockwise.
- Remove the Screw Tap from the handle by pulling the black collar backwards and then removing the Screw Tap.

Screw Length Measurement

- The screw length is approximated by sliding the Screw Length Gauge over the Guide Wire. Ensure that the distal Guide Wire tip represents the end position of the pedicle screw tip.
- Hold the Guide Wire firmly while sliding the blunt end of the Screw Length Gauge over it.
- Read the screw length between the two widest laser markings on the Guide Wire.



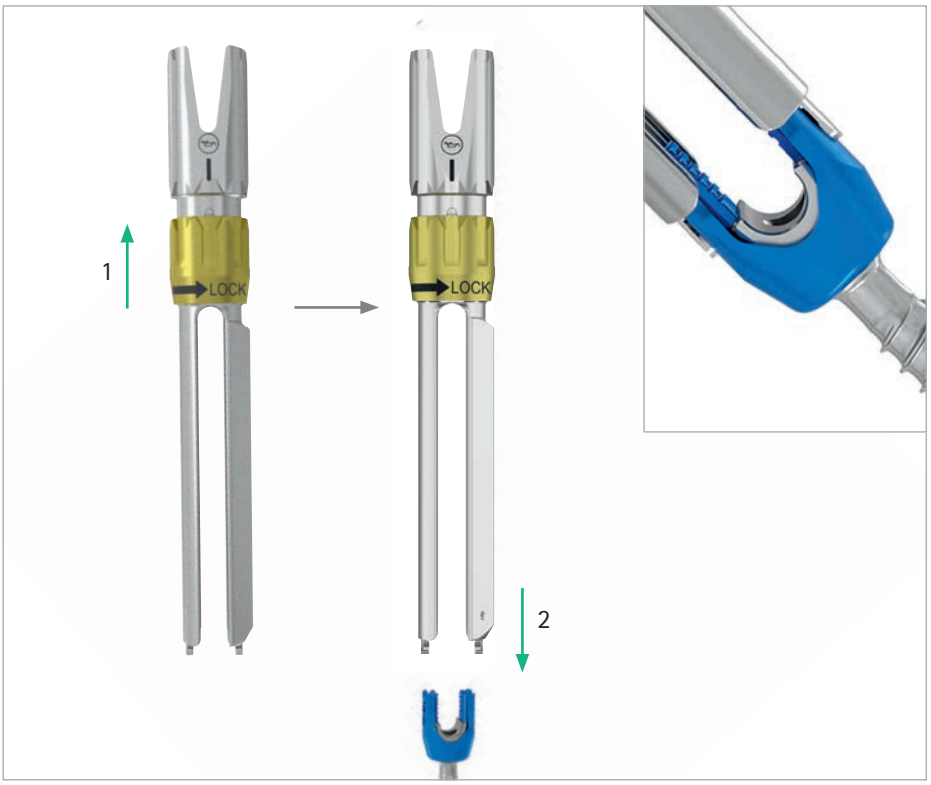
3 | Pedicle Screw Placement



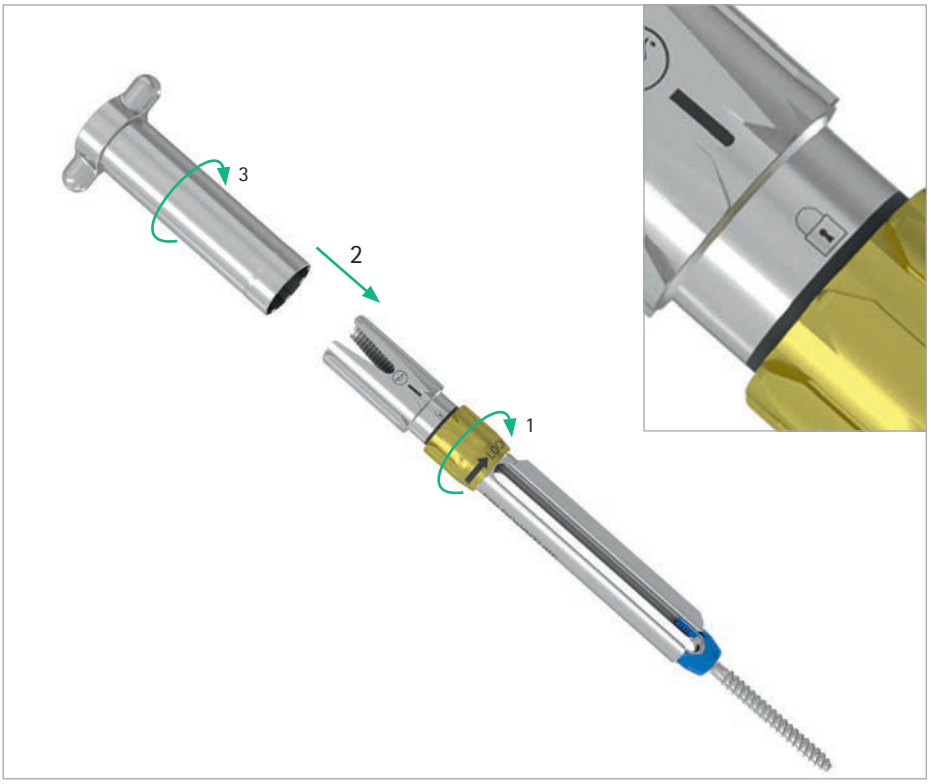
SZ222R/SZ224R/SZ225R
Ennovate® Ratchet Handle

SZ381R
Ennovate® MIS/FRI
Screwdriver

SZ405R
Ennovate® FRI Downtube



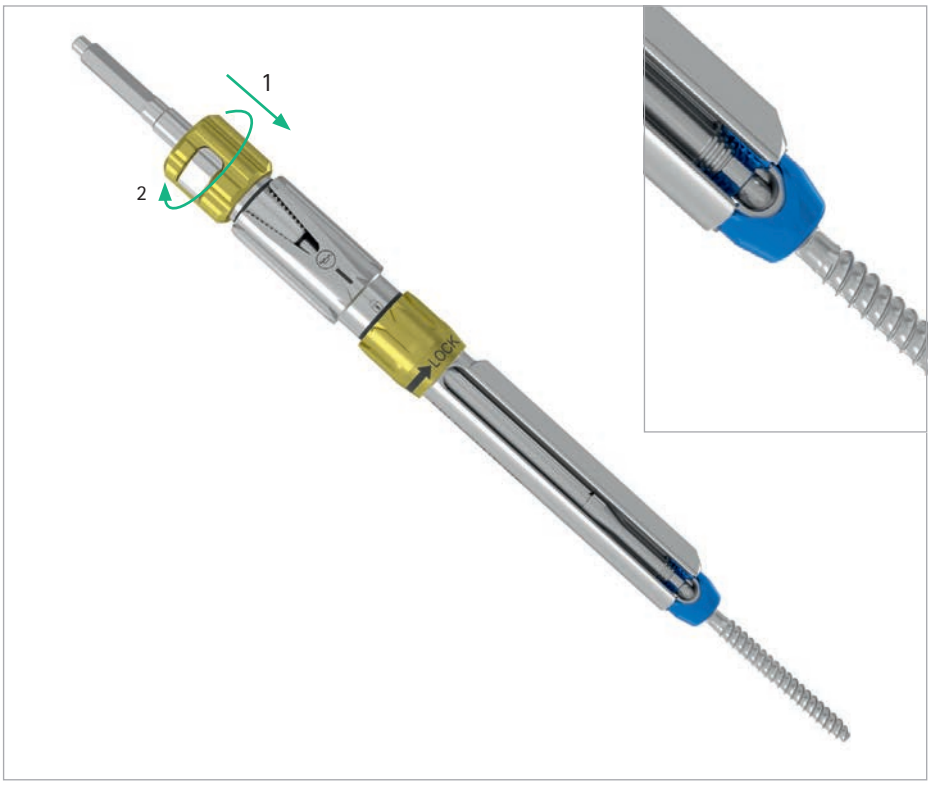
- Pull the outer sleeve of the FRI Downtube backwards until the golden ring touches the silver crown (1).
- Lower the FRI Downtube onto the pedicle screw head from above (2). The acoustic signal is an indicator that the FRI Downtube connection arms have attached to the pedicle screw head.
- Proper coupling is achieved when the connection arms fully engage with the pedicle screw head. Visual and tactile confirmation of the connection is recommended.



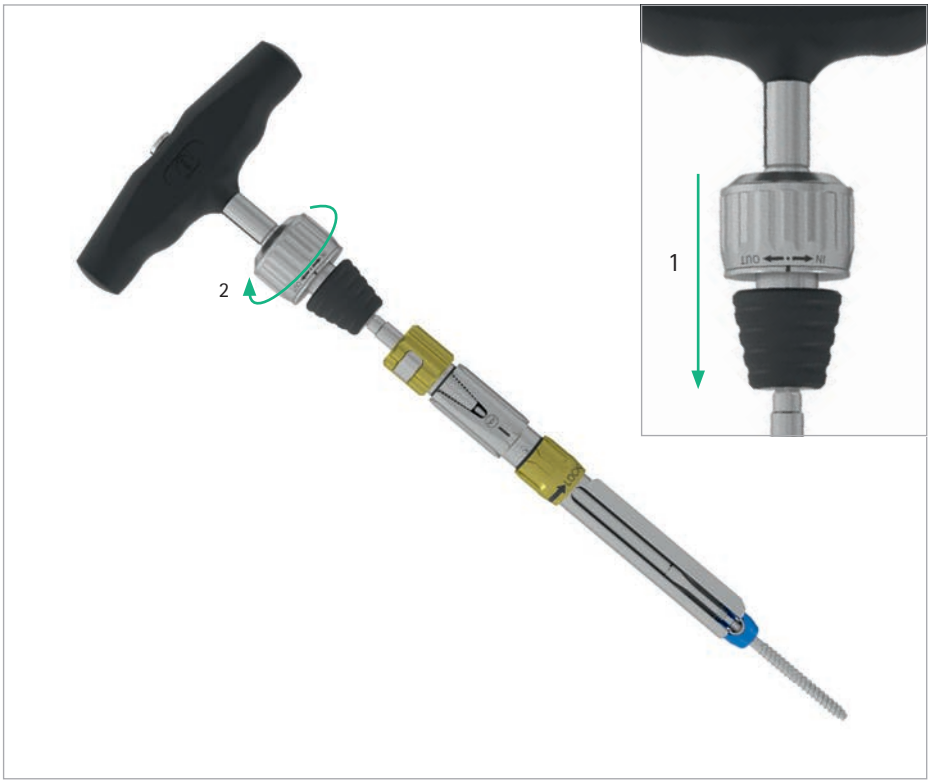
- Release the outer sleeve of the FRI Downtube and turn the golden ring counter-clockwise until (1) the upper portion of the golden ring is flush with the line marking.
- If needed, the Tightening Key may be used to enhance the tightening. Slide the Tightening Key over the FRI Downtube (2) and turn it counter-clockwise (3) until a positive stop is perceived.

3 | Pedicle Screw Placement

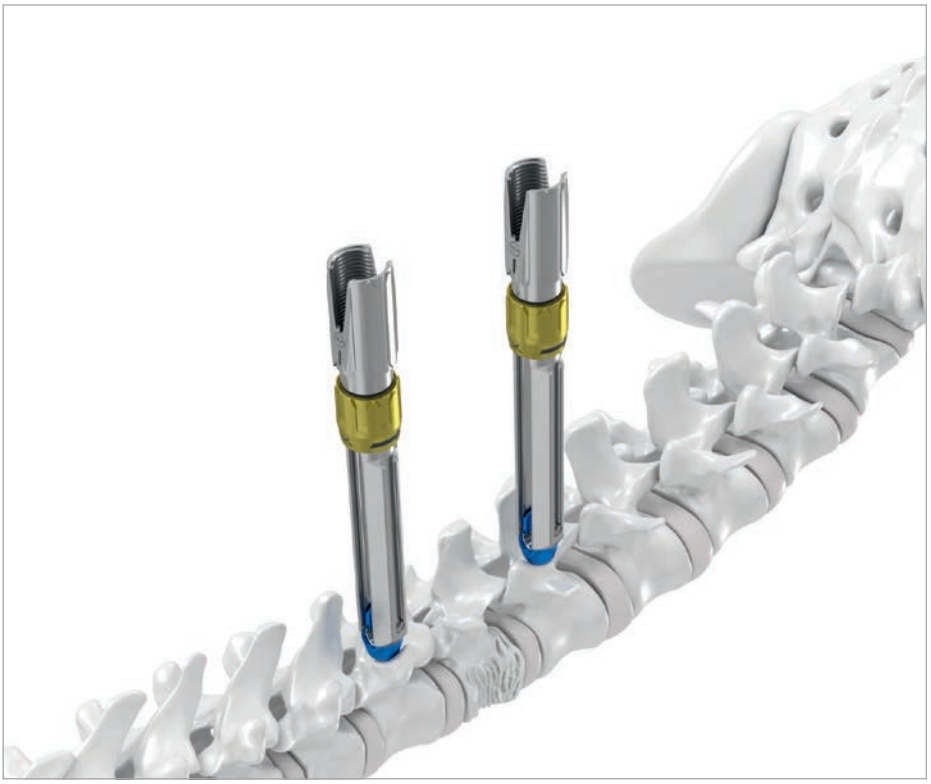
- Insert the Screwdriver into the FRI Downtube (1) while ensuring the tip of the Screwdriver fully engages to the pedicle screw head.
- Rotate the golden knob of the Screwdriver clockwise (2) to lock the threaded end of the Screwdriver into the pedicle screw head.
- Proper fixation is reached when the pedicle screw is restricted polyaxially.



- Attach the desired handle to the Screwdriver by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop (1).
- If desired, additional screw connection can be achieved by holding the handle while turning the golden knob of the Screwdriver clockwise.
- Switch the ratchet to the forward (IN) position (2) and, if used, slide the FRI Downtube assembly over the Guide Wire.



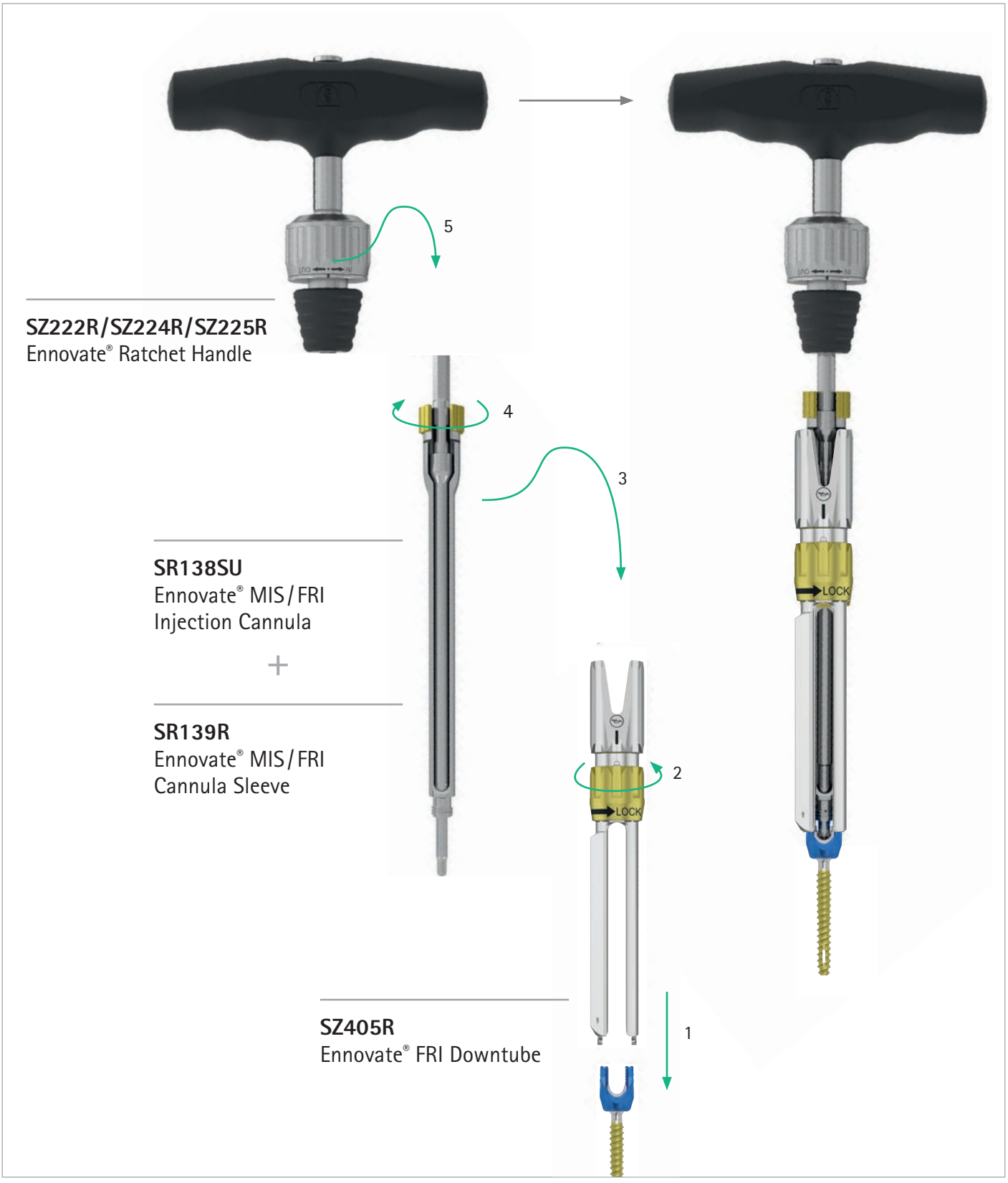
- Advance the pedicle screw to the desired depth by turning the handle clockwise.
- If using a Guide Wire, ensure that the Guide Wire is removed after an appropriate amount of bone purchase is established.
- Intra-operative imaging may be used to avoid cortical wall/vascular perforation.



- Once the pedicle screw is fully inserted, turn the golden knob of the Screwdriver counter-clockwise to disengage the Screwdriver from the FRI Downtube.
- Ensure that the polyaxiality of the pedicle screw head is intact and that it shows limited interference with anatomical structures.
- Ensure that the FRI Downtubes are aligned parallel to each other with the FRI grooves facing to the lateral sides.
- The placement and size of the pedicle screws may be confirmed using intra-operative imaging prior to rod insertion.

AESCULAP® Ennovate®

4 | Cement Delivery (optional)



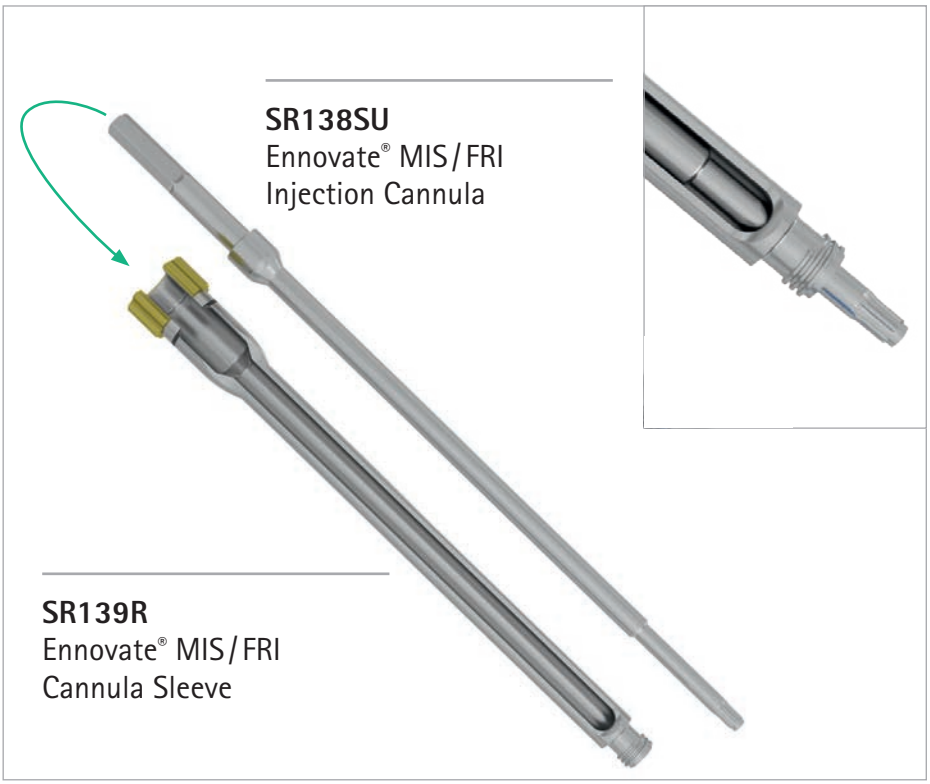
SZ222R/SZ224R/SZ225R
Ennovate® Ratchet Handle

SR138SU
Ennovate® MIS/FRI
Injection Cannula

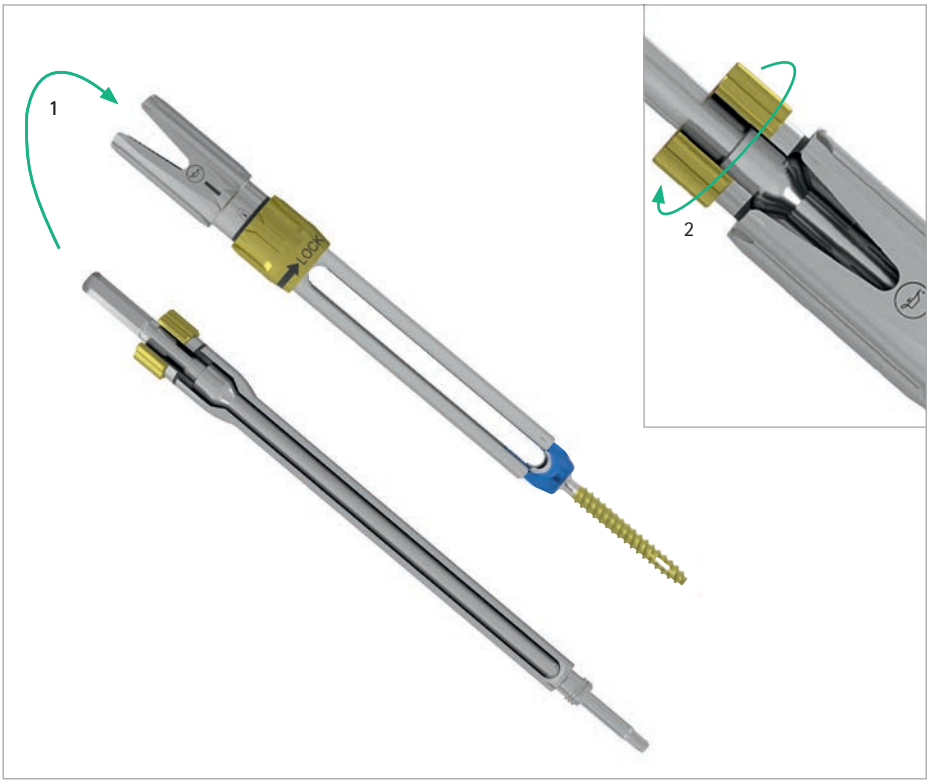
+

SR139R
Ennovate® MIS/FRI
Cannula Sleeve

SZ405R
Ennovate® FRI Downtube



- Please ensure that only Ennovate® Fenestrated PentaCore® Screws are used for the following steps.
- Please note that the Injector is intended to replace the Screwdriver.
- For Injector assembly, insert the Injection Cannula into the Cannula Sleeve. Ensure that the tip of the Injection Cannula is aligned with the threaded portion of the Cannula Sleeve.

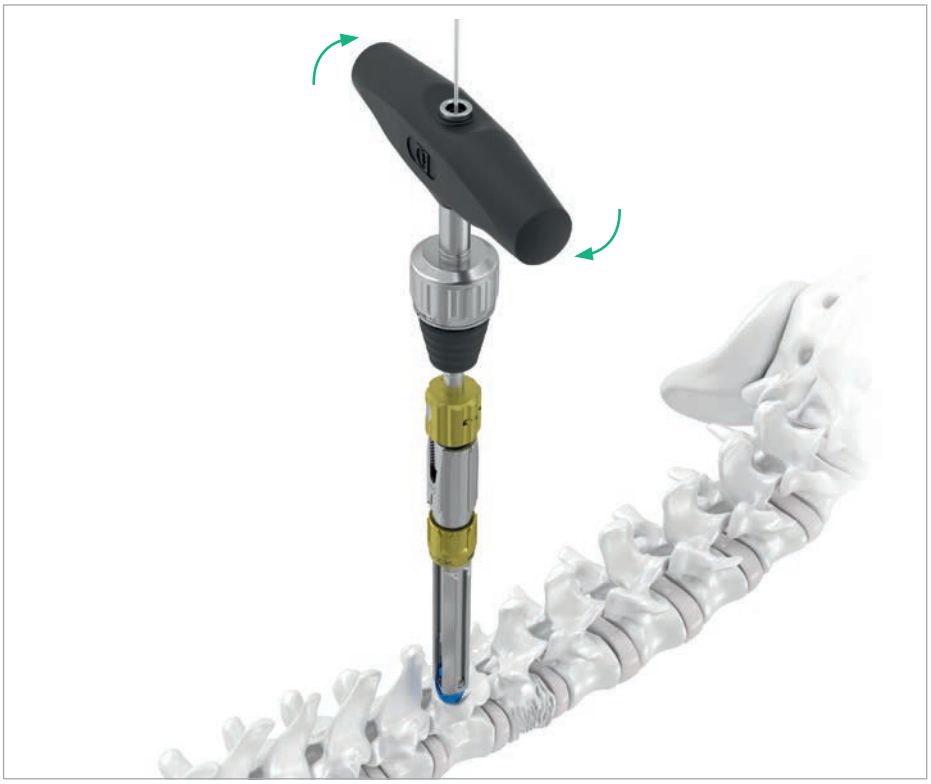


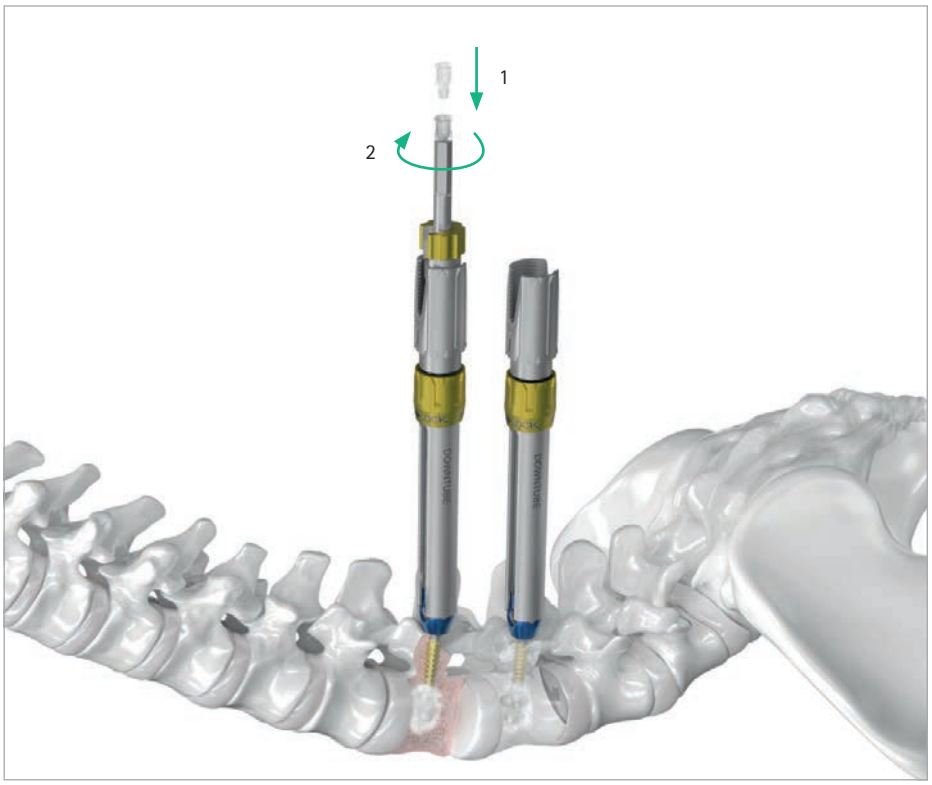
- Slide the Injector through the FRI Downtube (1) and place the tip of the Injector into the head of the pedicle screw to be cemented.
- The Injector is engaged by turning the golden portion of the Cannula Sleeve clockwise (2) while firmly holding the silver crown of the FRI Downtube.
- Proper fixation is reached when the pedicle screw is restricted polyaxially and the line marking on the Injector is flush with the silver crown of the FRI Downtube. Visual and tactile confirmation of the connection is recommended.

4 | Cement Delivery (optional)

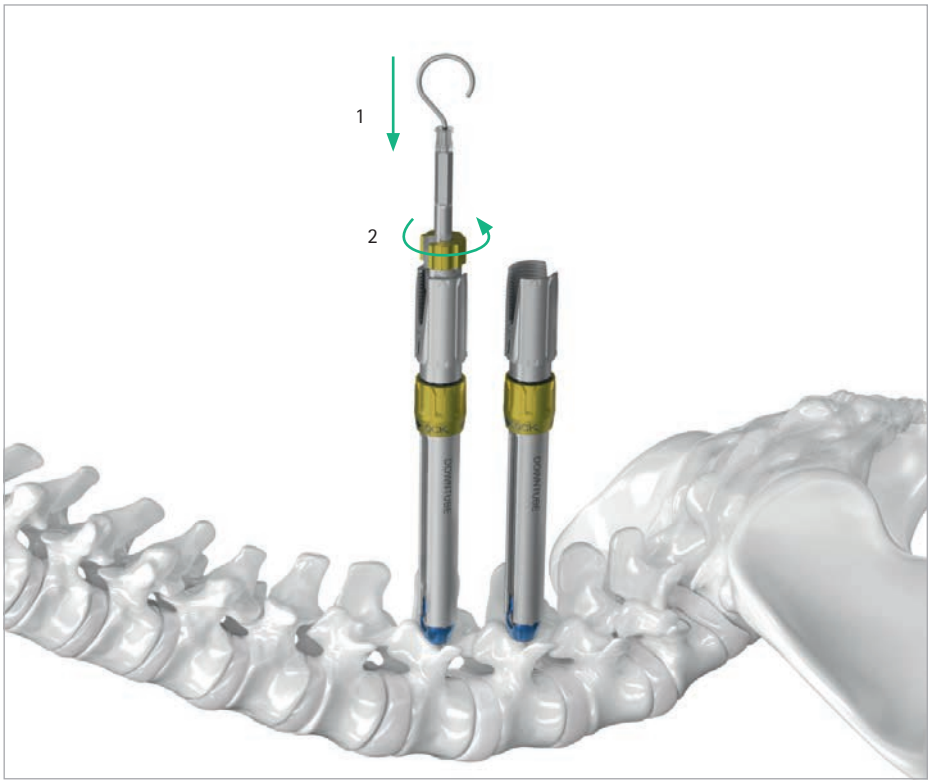
- Attach the desired handle to the Injector by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop.
- If desired, additional connection can be achieved by holding the handle while turning the golden knob of the Injector clockwise.
- Switch the ratchet to the forward (IN) position and, if used, slide the FRI Downtube assembly over the Guide Wire.

- Advance the pedicle screw to the desired depth by turning the handle clockwise.
- If using a Guide Wire, ensure that the Guide Wire is removed after an appropriate amount of bone purchase is established.
- Intra-operative imaging may be used to avoid cortical wall/vascular perforation.





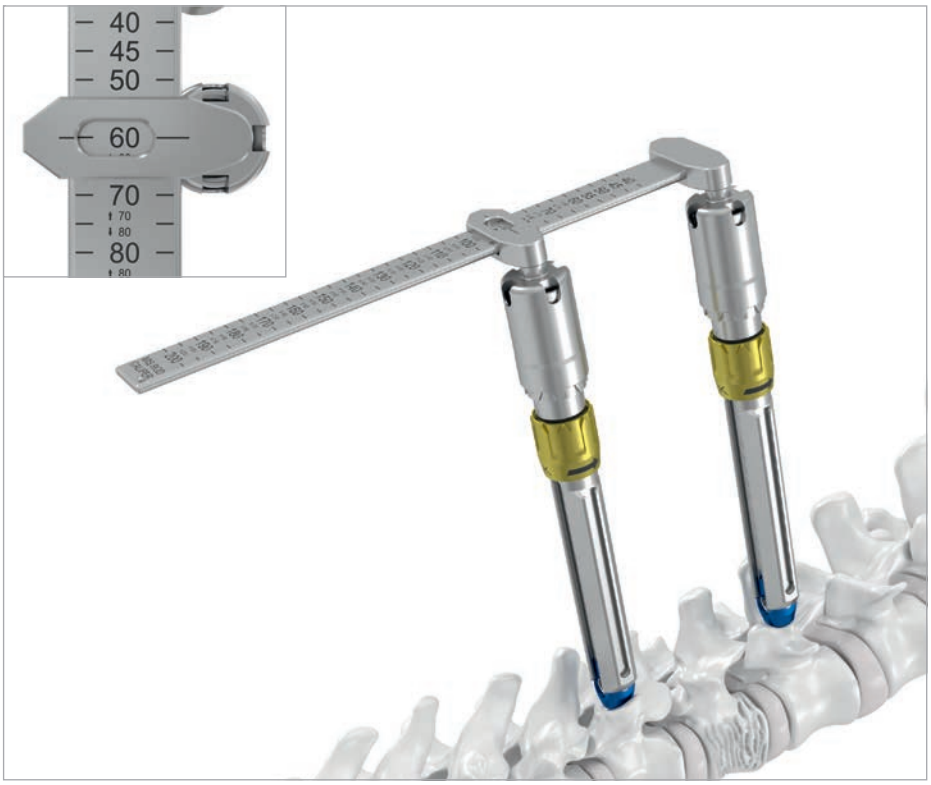
- Before cement delivery, attach the Luer Lock adapter to the Injector by turning the adapter clockwise until the stop.
- Check if the cement has reached the desired viscosity for application and that the cement application system provides a Luer Lock connection part.
- Attach the cement application system firmly to the Luer Lock of the Injector.
- Inject the cement under slight pressure with the assistance of radiological imaging. The procedure may be monitored closely by the surgeon.
- Inject cement until it extrudes from the lateral slots of the Ennovate® Fenestrated PentaCore® Screw. Check continuously that no cement leakage occurs.
- Continue the injection until an adequate quantity of cement is introduced and shows a cloud pattern.



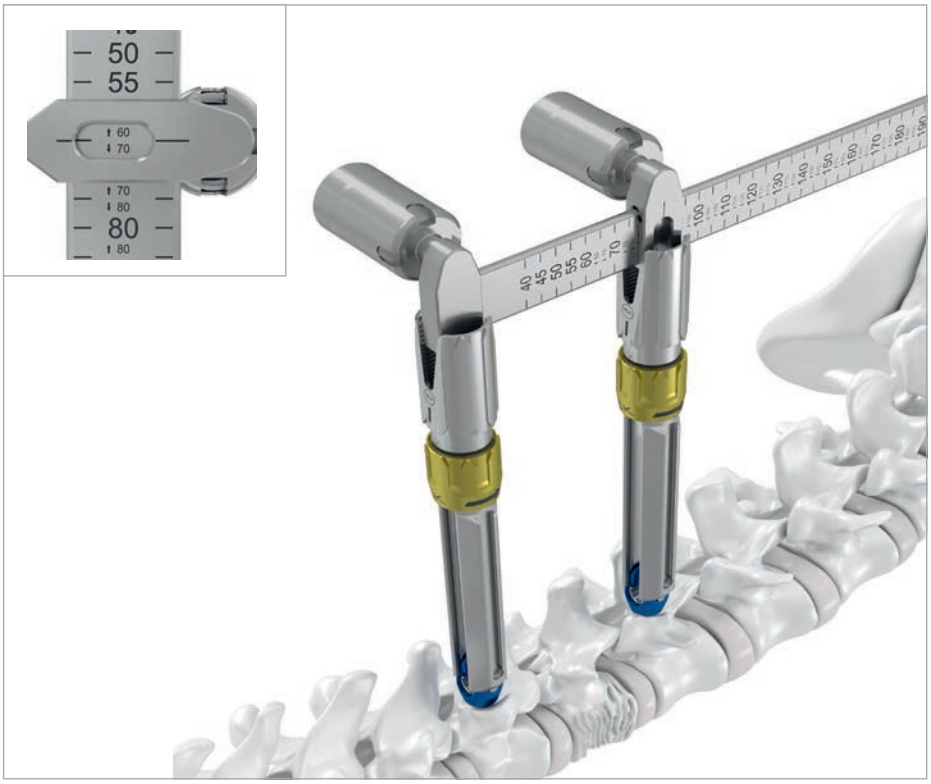
- The handling time of the cement ends when its viscosity is so high that no further cement delivery is possible.
- After cement delivery, ensure the Injector remains in its position until the cement has hardened to its final stage.
- The Pestle may be used to push the remaining cement from the Injector into the pedicle screw (1).
- Once the cement has hardened, the Injector can be removed by turning the golden portion of the MIS/FRI Cannula Sleeve counter-clockwise (2) while firmly holding the FRI Downtube in place.
- Visual confirmation of the pedicle screw head integrity is recommended.

5 | Rod Measurement

- Align the FRI Downtubes parallel to each other and fully seat the cylinders of the Rod Length Gauge onto the FRI Down-tubes of the most cranial and caudal pedicle screw.
- The scale on top of the Rod Length Gauge reflects the spectrum of the Ennovate® rods and indicates the minimum recommended rod length. In case two sizes are shown (see detail picture below), it is recommended to select a longer rod.
- Once the rod measurement is taken, align the FRI Downtubes to each other to facilitate rod placement.

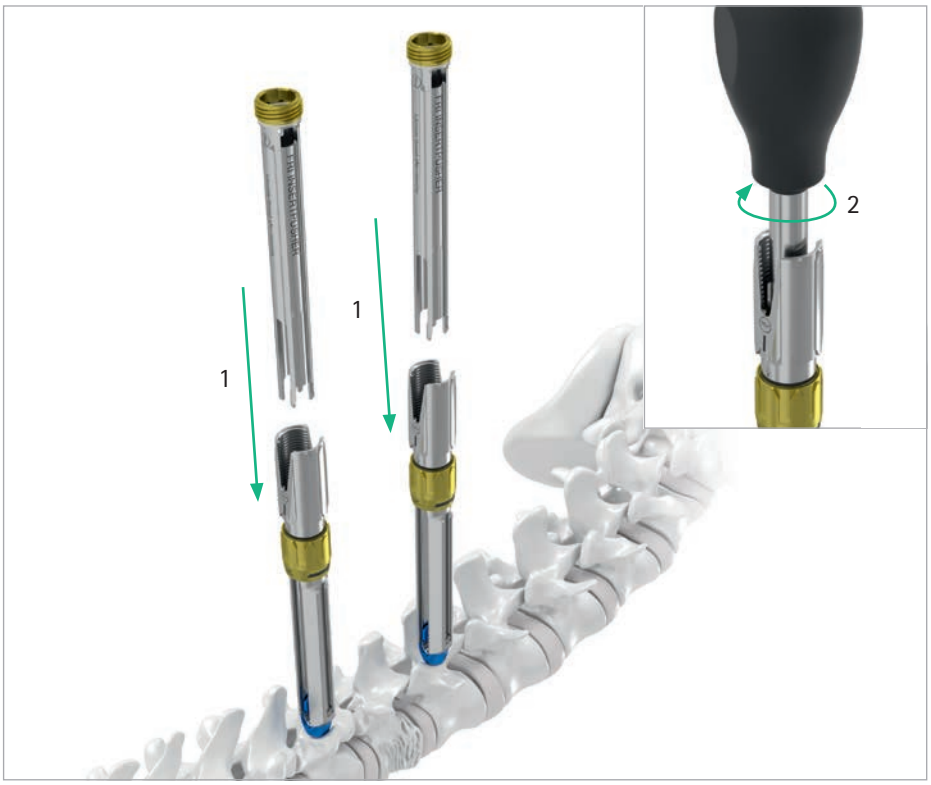


- If desired, the Rod Length Gauge can be flipped by 90° and the slide bars can be placed into the FRI Downtubes of the most cranial and caudal pedicle screw.
- The scale on top of the Rod Length Gauge reflects the spectrum of the Ennovate® rods and indicates the minimum recommended rod length. In case two sizes are shown (see detail picture on the right), it is recommended to select a longer rod.
- Once the rod measurement is taken, align the FRI Downtubes to each other to facilitate rod placement.

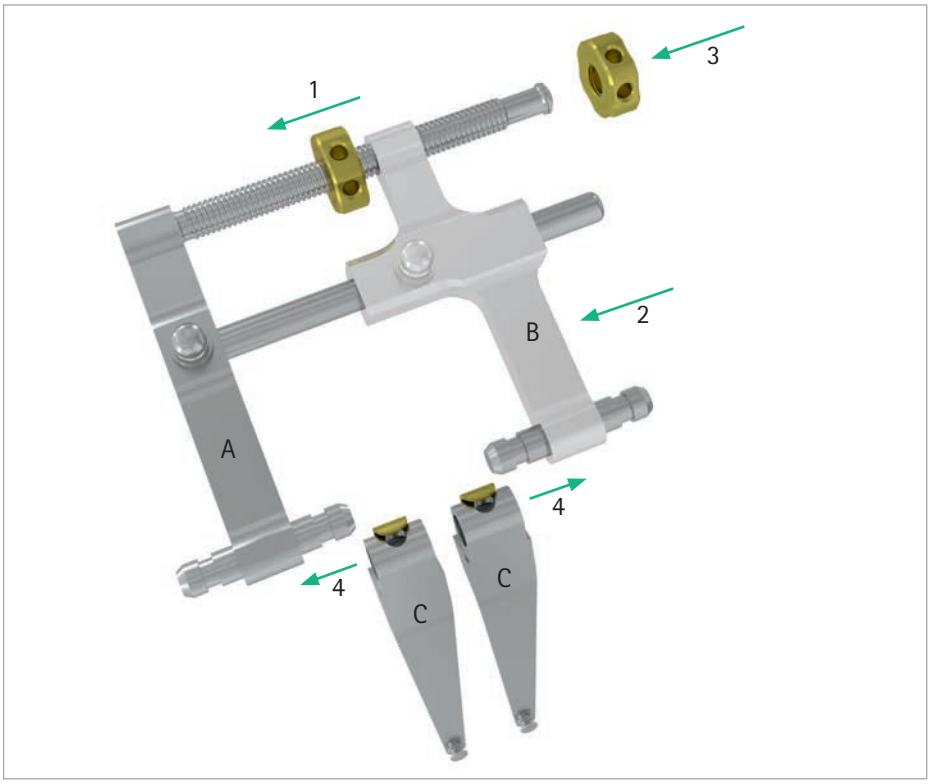


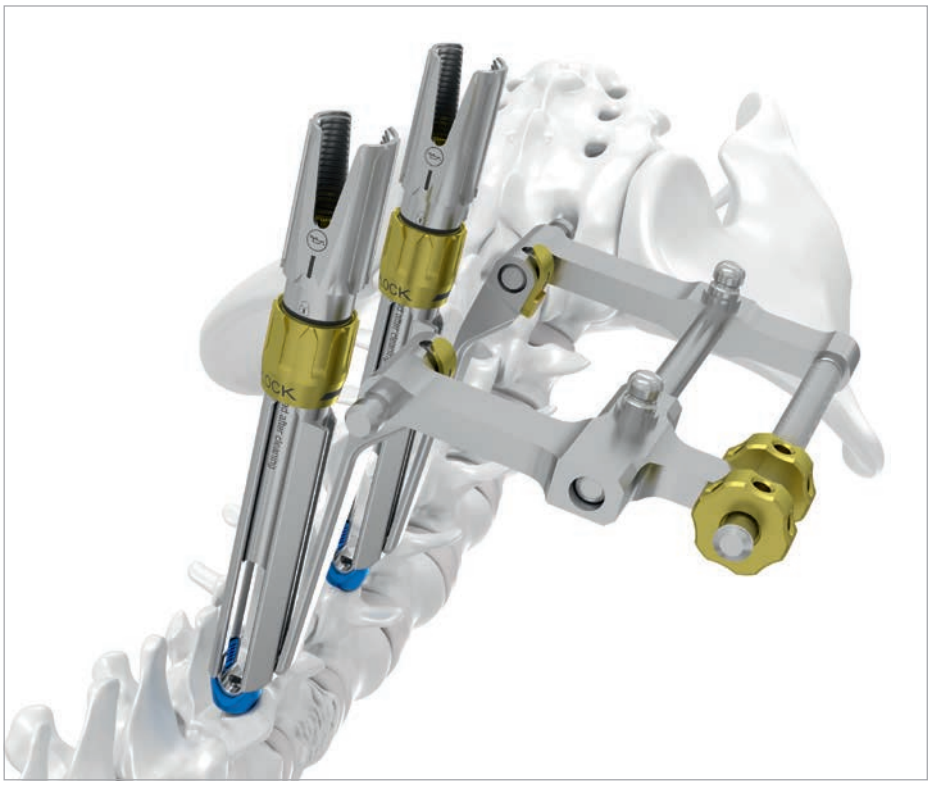
5 | Rod Measurement

- Slide the FRI Insert Pusher into the FRI Downtubes (1). Ensure that the longer slot of the FRI Insert Pusher is aligned with the rod entry point.
- If needed, the Reduction/Tightening Handle may be used to facilitate the introduction of the FRI Insert Pusher (2).
- Ensure that the polyaxiality of the pedicle screw head is intact or at least movable, prior to the FRI Distractor attachment.

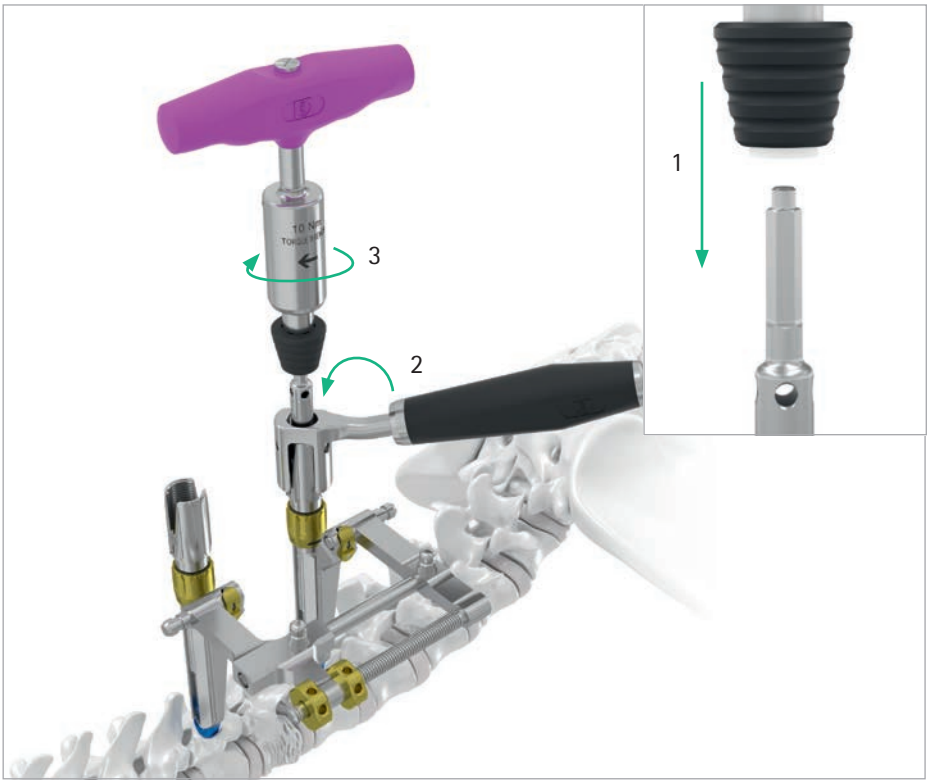


- Assemble the FRI Distractor by placing a golden distraction nut (1) onto the spindle of frame A.
- Position the free distraction portion B on frame A (2).
- Place a second golden distraction nut onto the spindle of frame A (3).
- Attach the FRI Distraction Arms C onto connection parts of the frame (4).
- Alternatively the FRI Distraction Arms C can be attached to the Parallel Distractor Forceps instead of the FRI Distractor.





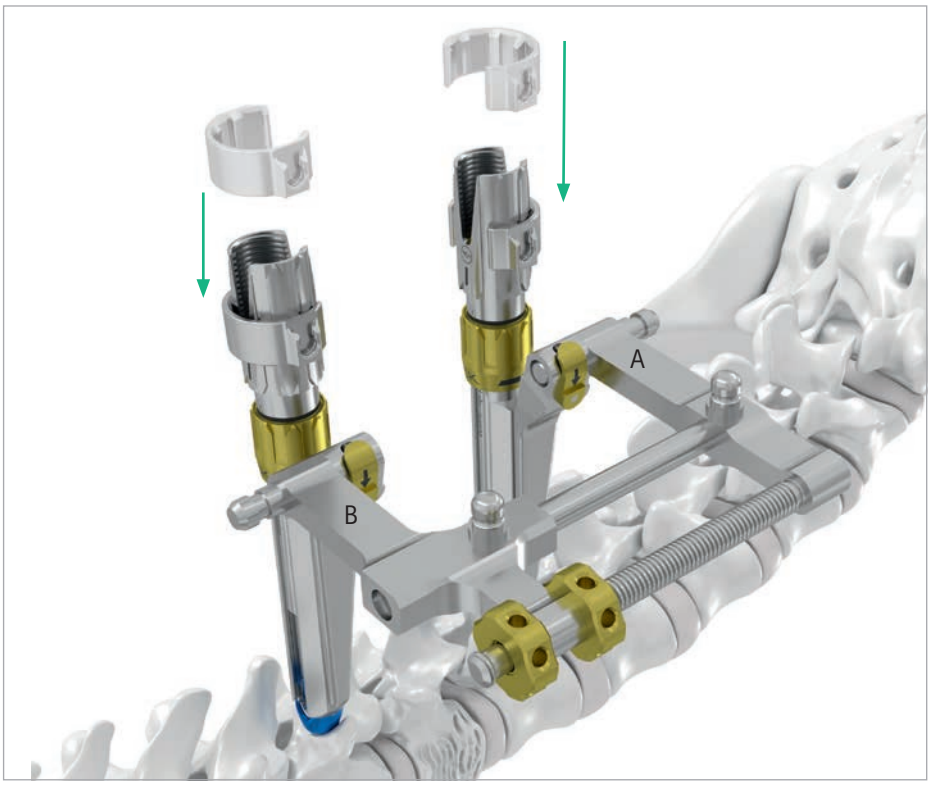
- The FRI Distractor is attached to the FRI Downtubes by sliding the pins down into the FRI grooves until the stop.
- Ensure that the pins are always placed as low as possible, in order to allow enhanced force transmission.
- Repeat this process on the contra-lateral side.



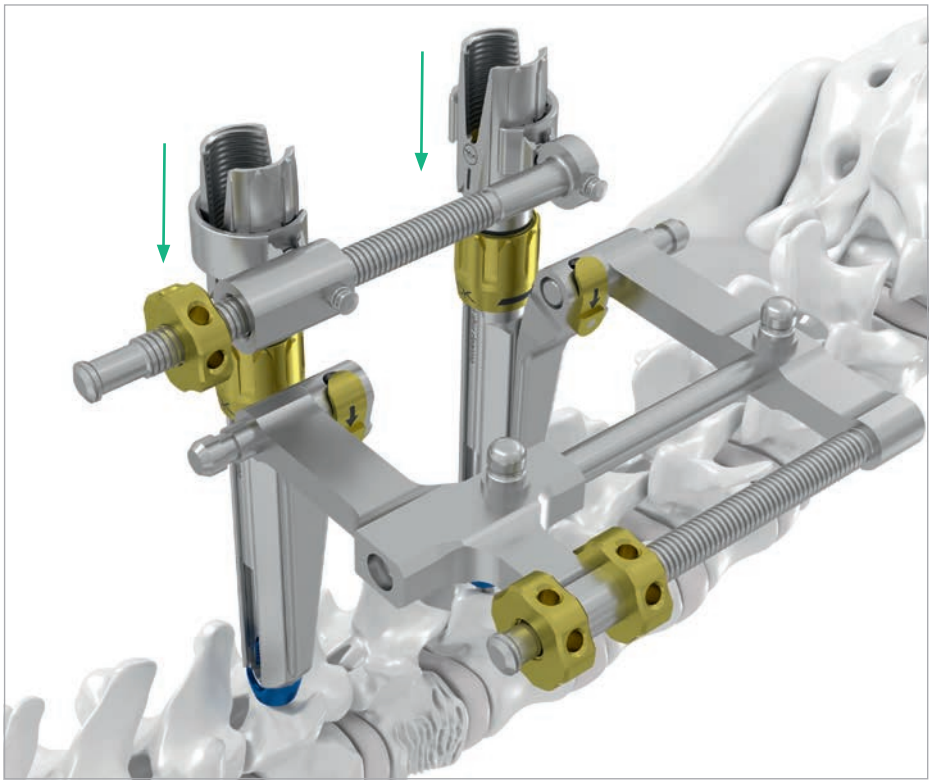
- Ensure that the necessary lordotic/ kyphotic correction angle is considered prior to PolyLock® activation, by tilting the FRI Downtubes accordingly.
- Connect the Torque Wrench Handle 10 Nm to the PolyLock® Key by sliding the hexagonal shaped portion of the shaft into the coupling until the stop (1).
- Engage the MIS Counter Torque Handle to the FRI Downtube (2).
- Place the PolyLock® assembly into the upper geometry of the FRI Insert Pusher.
- Turn the PolyLock® assembly clockwise while firmly holding the MIS Counter Torque Handle until an acoustic signal sounds (3). The sound is an indicator that PolyLock® has been activated.
- Repeat this process on all FRI Downtubes requiring PolyLock®.

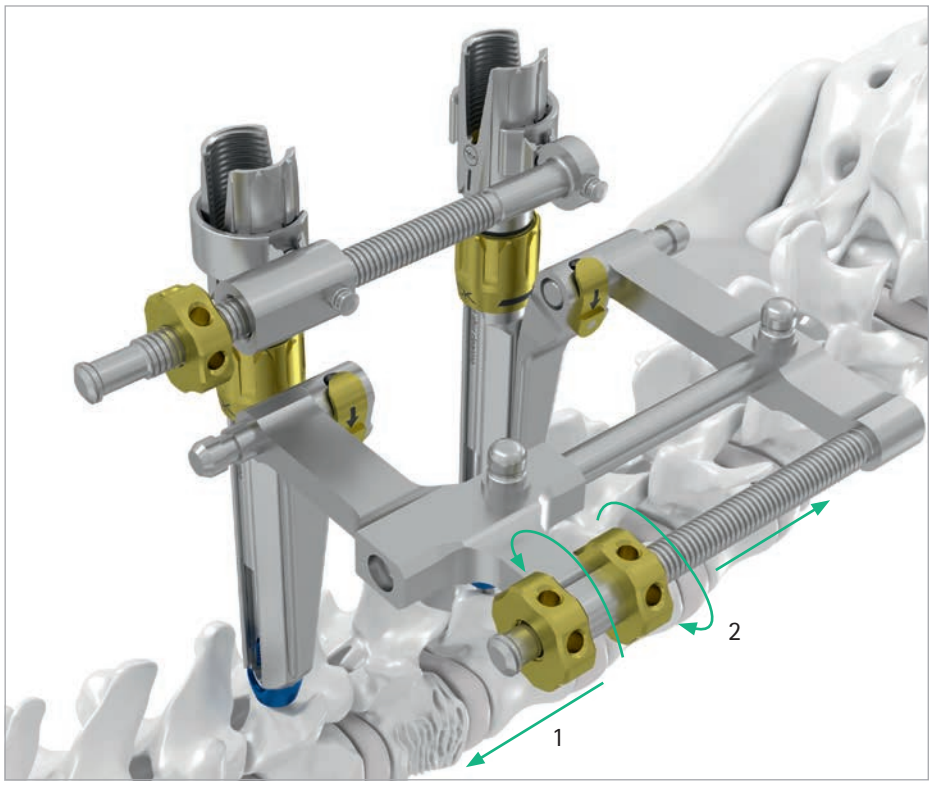
6 | Ligamentotaxis and Angular Correction

- Align the FRI C-Rings with the FRI groove entry points facing upwards.
- Slide the FRI C-Rings onto the FRI Downtubes until the stop.
- Repeat this process on the contralateral side.

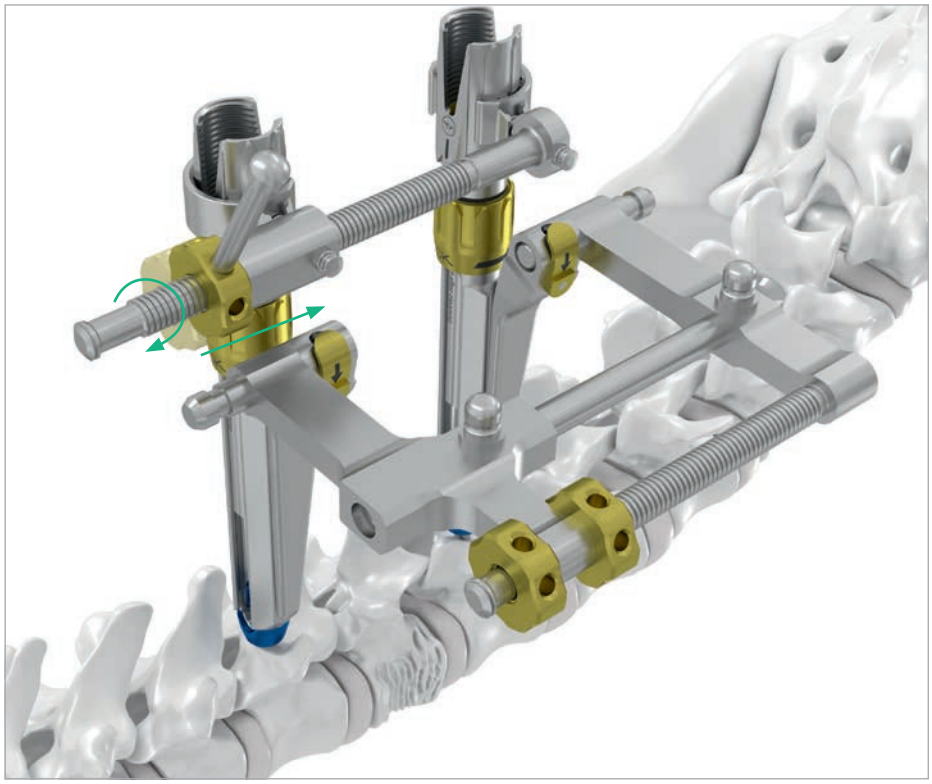


- If a lordotic correction is planned, assemble the FRI Spindle Distractor by sliding the distraction portion on the spindle first and placing a golden distraction nut (as shown on the right side) afterwards.
- If a kyphotic correction is planned, assemble the FRI Spindle Distractor by placing a golden distraction nut on the spindle which is followed by the distraction portion. The distraction portion is secured by a second golden distraction nut.
- The FRI Spindle Distractor is attached to the FRI C-Rings by sliding the pins down into the FRI grooves until the stop.
- Repeat this process on the contralateral side.





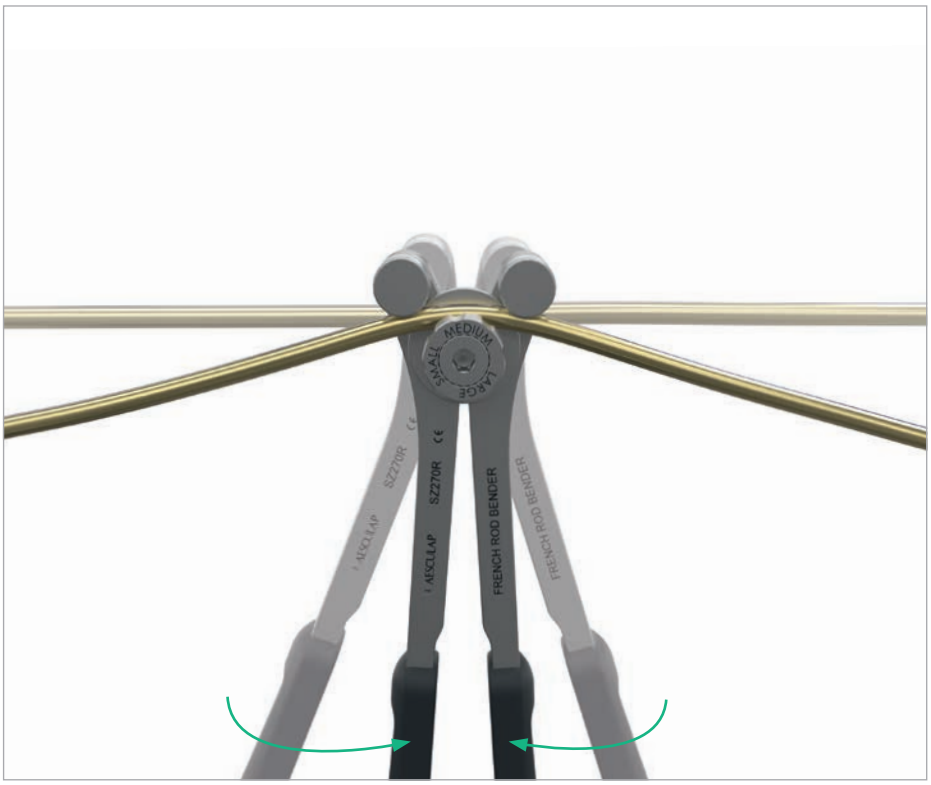
- Prior to ligamentotaxis, turn the golden nuts on the FRI Distractor away from each other so that the movable frame B can move along the fixed frame A.
- By turning the golden nuts towards the FRI Downtubes, a compression is performed (1). By turning the golden nuts away from the FRI Downtubes, a distraction is performed (2).
- If needed, the FRI Tightening Handle can be used for additional support during rotation of the golden distraction nuts.
- Secure the ligamentotaxis by turning the opposing golden distraction nut to the distraction portion of the FRI Distractor.
- Intra-operative imaging may be used to check the spinal segment.



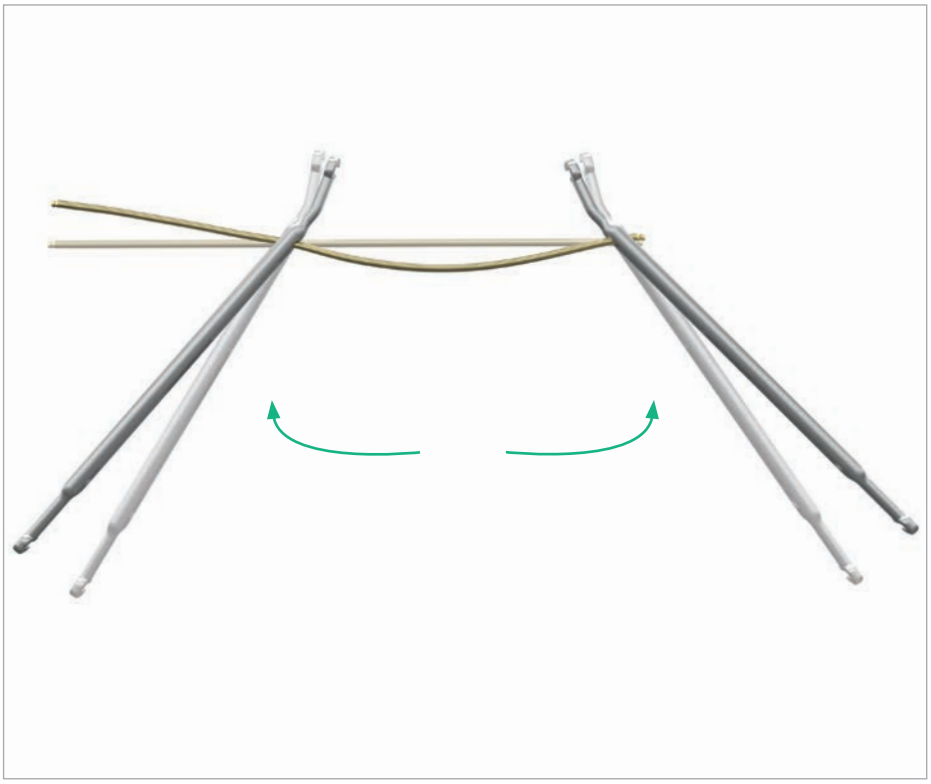
- For angular correction, turn the golden distraction nut on the FRI Spindle Distractor to obtain the desired correction.
- If needed, the FRI Tightening Handle can be used for additional support during rotation of the golden distraction nut(s).
- By turning the inner golden nut towards the FRI Downtubes, a lordotic correction is performed. By turning the outer golden nut away from the FRI Downtubes (as shown in the picture) a kyphotic correction is performed.
- Secure the angular correction by turning the opposing golden distraction nut (if used) to the distraction portion of the FRI Distractor.
- Intra-operative imaging may be used to check the spinal segment.

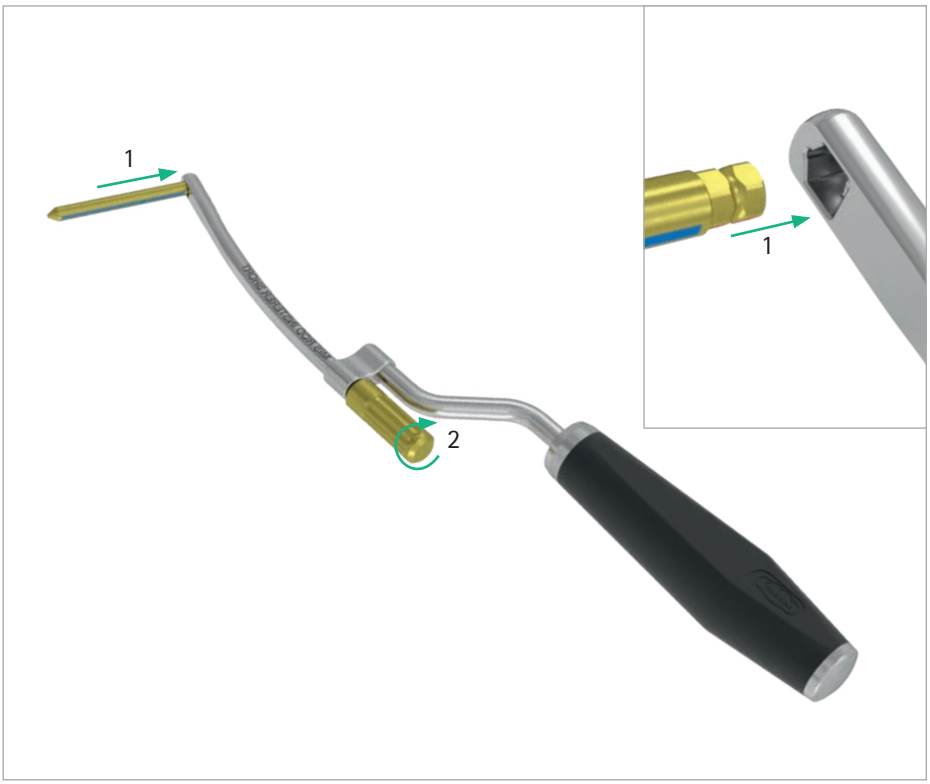
6 | Ligamentotaxis and Angular Correction

- In order to maintain the performed correction, it is recommended to adapt the rod according to the present anatomy. For this the flexible Rod Template may be used to determine the sagittal profile.
- For sagittal and coronal profile contouring, the Rod Template may be placed in the opening of the FRI Downtubes.
- Rods may be contoured using the Rod Bender, which offers various bending radii.
- To contour the rod, set the bending radius by pulling the knob and turning it to the desired radius.
- Place the rod between the bending knob and both holding knobs. All rods show a line marking as a reference to assist bending in sagittal plane.
- For rod contouring, squeeze both handles and repeat the contouring process along the rod, until the desired rod contour is achieved.

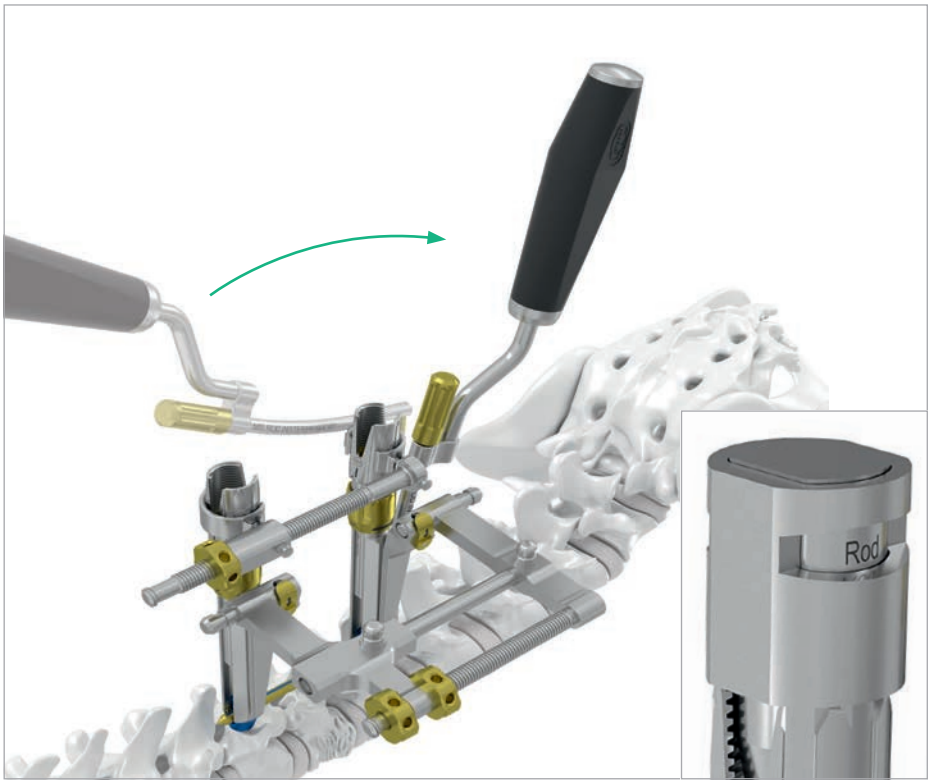


- Rods may be contoured using the Sagittal Rod Benders, which allow high radius bending.
- The Sagittal Rod Benders show straight and angled holes for enhanced rod accomodation.
- To contour the rod, slide the rod into the desired hole of each Sagittal Rod Bender.
- Grip the most distal portions of the Sagittal Rod Benders for enhanced mechanical advantage during contouring.
- By levering the Sagittal Rod Benders the rod is bent according to the desired contour.





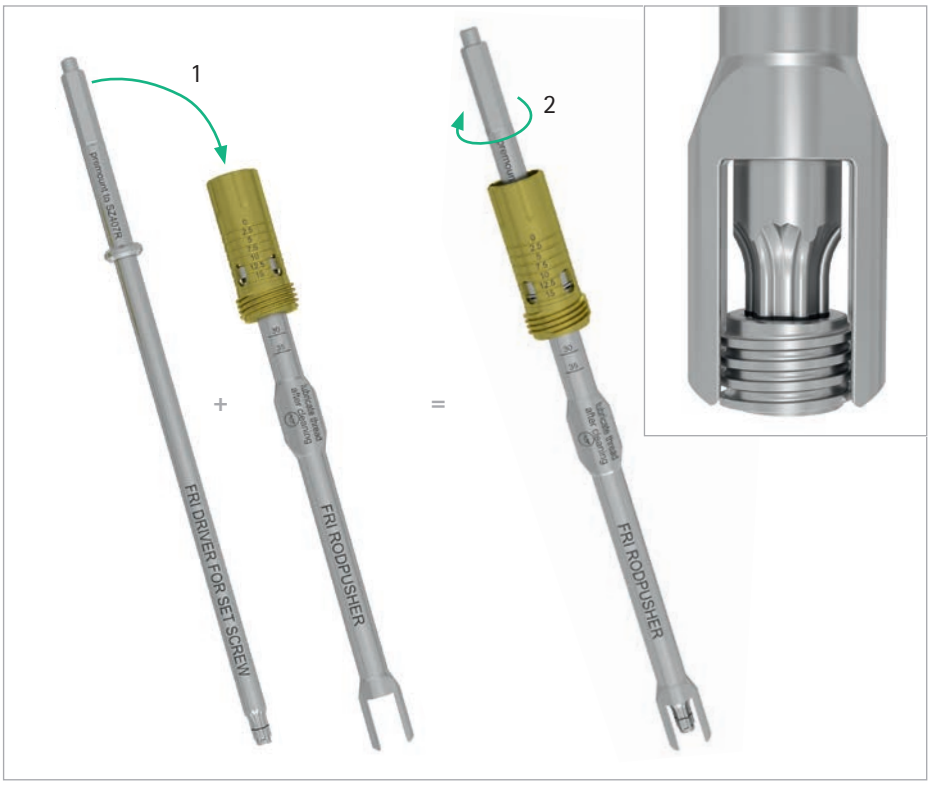
- Prior to rod attachment, ensure the clamping unit of the Rod Inserter does not interfere with the coupling geometry at the distal portion.
- Engage the Ennovate® rod to the Rod Inserter by sliding the hexagon shaped portion of the rod into the distal opening until the stop (1).
- Turn the golden knob clockwise until the stop (2) . Visual and tactile confirmation of the connection is recommended.
- The line marking on the Ennovate® rod may be aligned to the line marking on the Rod Inserter. If desired, the rod may be tilted according to surgeon preference.



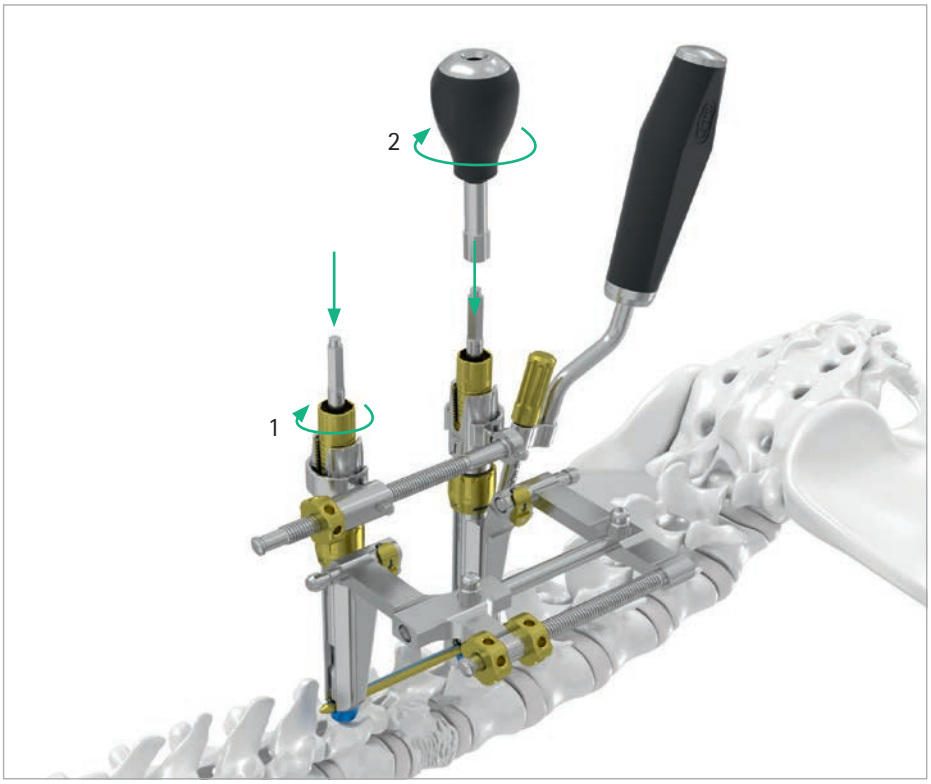
- Guide the Ennovate® rod through the longitudinal slots of the FRI Downtubes.
- Ensure that the rod has been inserted through all FRI Downtubes using the Rod Indicator.
- Slide the Rod Indicator into the desired FRI Downtube until the stop. When the rod is properly inserted, "Rod" appears. In case "no Rod" appears, the rod is not placed in the FRI Downtube.

6 | Ligamentotaxis and Angular Correction

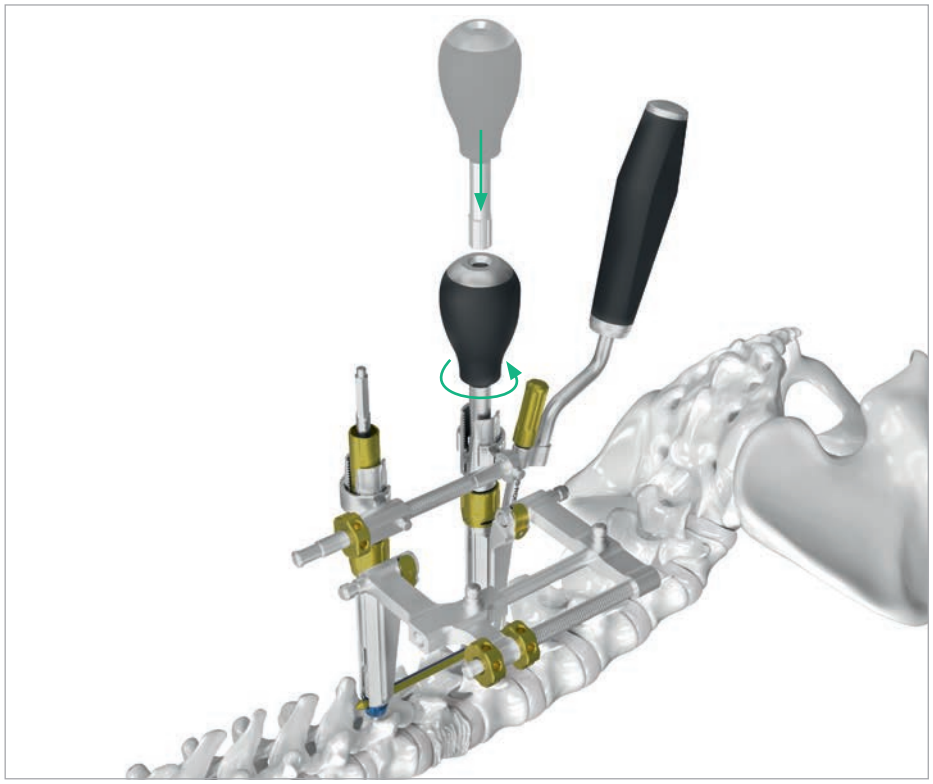
- Once the rod has been inserted through all FRI Downtubes, slide the FRI Set Screw Driver into the FRI Rod Pusher (1) and turn the FRI Set Screw Driver clockwise until it engages with the FRI Rod Pusher (2).
- Visual and tactile confirmation of the connection is recommended.
- Ensure that the Set Screw is loaded to the FRI Set Screw Driver prior to rod pushing procedure.
- For Set Screw placement, load a Set Screw on the FRI Set Screw Driver and ensure proper fixation of the implant based on its alignment with the laser marking on the instrument.



- Slide the FRI Rod Pusher assembly (with Set Screw Driver and loaded Set Screw) into the FRI Downtube and turn the golden part clockwise until the FRI Rod Pusher contacts the rod (1).
- The marked scale on top of the FRI Rod Pusher indicates the amount of persuasion left until the rod is fully seated in the pedicle screw head.
- If needed, the Reduction/Tightening Handle may be used to facilitate rod pushing (2).



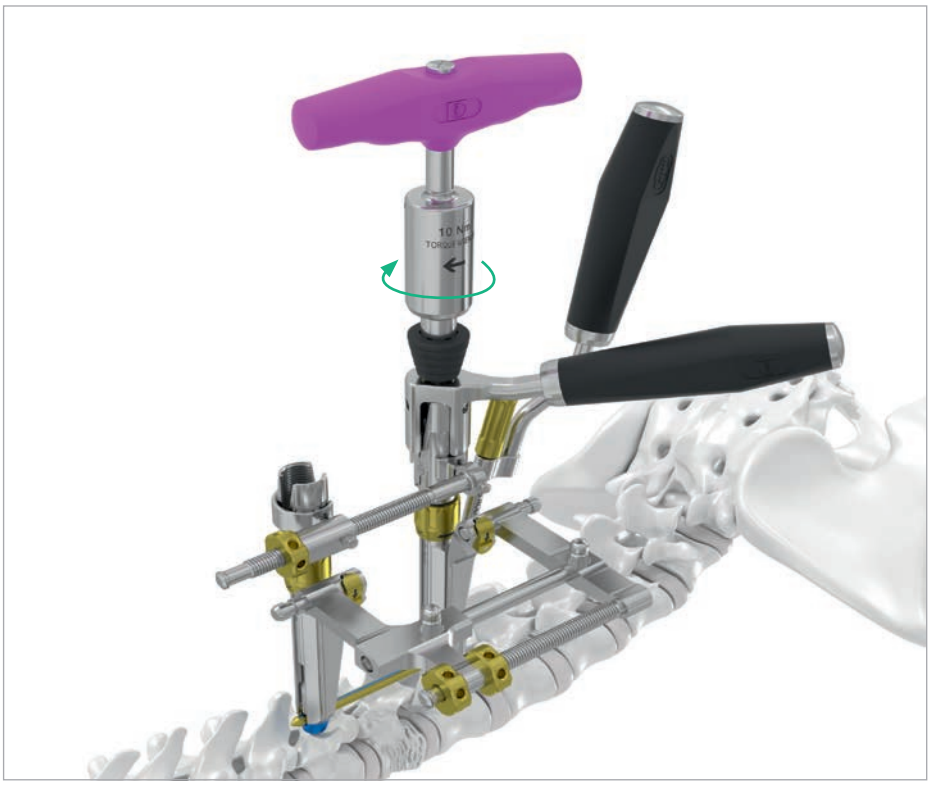
- Once the desired correction is achieved, a handle is attached to the FRI Set Screw Driver by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop.
- Turn the handle clockwise until the Set Screw engages with the pedicle screw head.



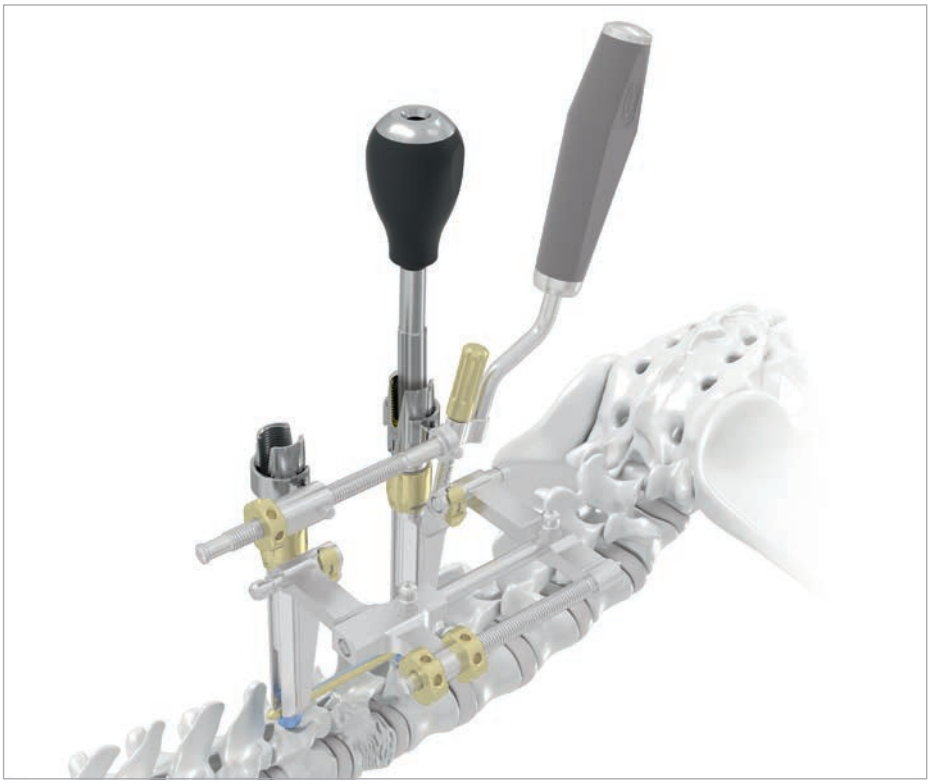
- The FRI Rod Pusher assembly is removed from the FRI Downtube by turning the golden part of the FRI Rod Pusher counter-clockwise.
- If needed, the Reduction/Tightening Handle may be used to facilitate instrument removal.
- Engage the MIS Counter Torque Handle to the coupling geometry on the FRI Downtube.
- Place the Reduction/Tightening Handle on the FRI Insert Pusher interface and turn the handle by a quarter while firmly holding the MIS Counter Torque Handle.

6 | Ligamentotaxis and Angular Correction

- Remove the FRI Set Screw Driver from the FRI Rod Pusher by turning it counter-clockwise.
- Attach the Torque Wrench Handle 10 Nm to the FRI Set Screw Driver by sliding the hexagonal shaped portion of the shaft into the handle coupling until the stop.
- Insert the Torque Wrench assembly through the FRI Downtube in order that the tip of the FRI Set Screw Driver engages to the Set Screw.
- Turn the Torque Wrench clockwise while firmly holding the MIS Counter Torque Handle until an acoustic signal sounds. The acoustic signal is an indicator that final tightening of 10 Nm has been achieved.

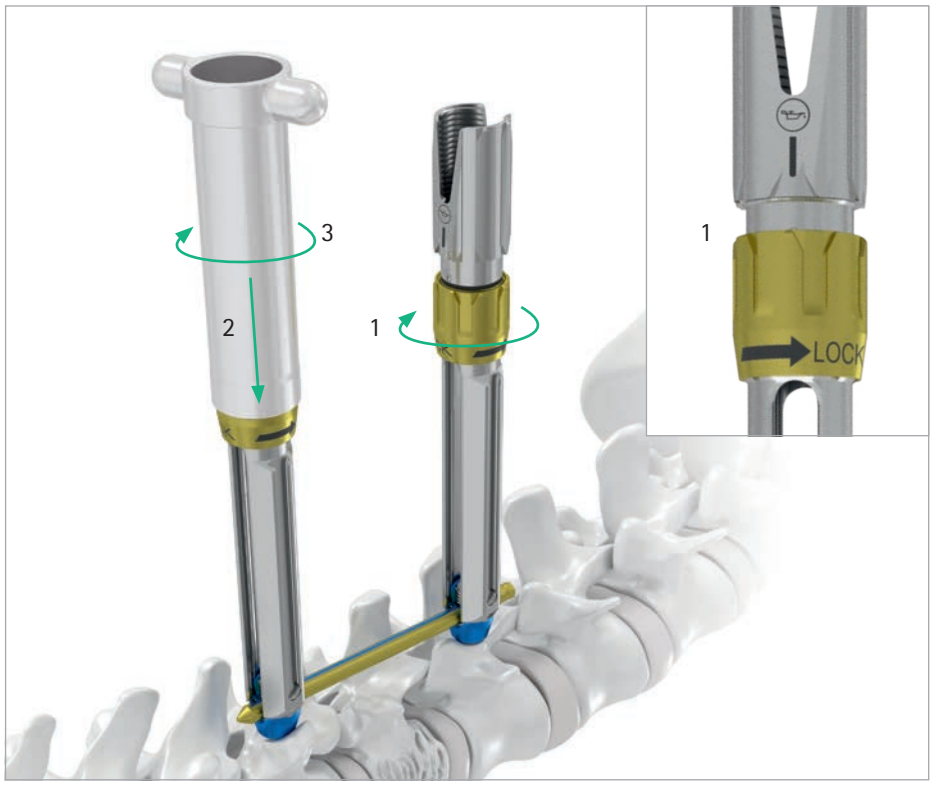


- Detach the FRI Distractor, FRI C-Rings and FRI Spindle Distractor by pulling them off the patient.
- Remove the MIS Rod Inserter by turning the golden knob counter-clockwise and tilting the handle towards the FRI Downtubes.
- Remove the FRI Insert Pusher by placing the Reduction/Tightening Handle on the FRI Insert Pusher interface and turning the handle counter-clockwise.

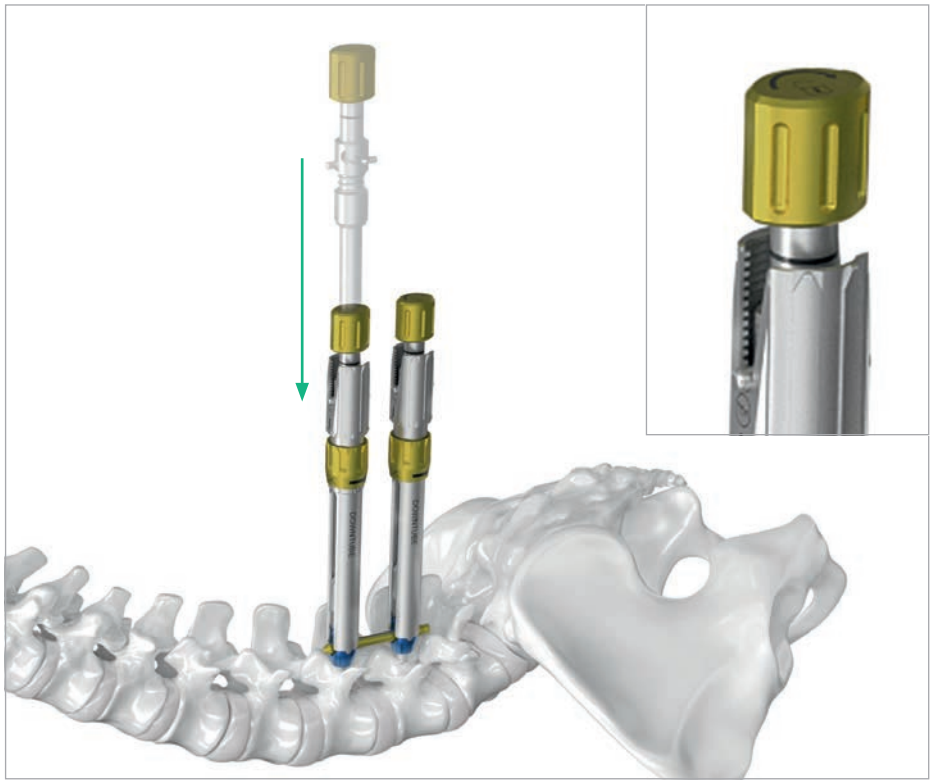


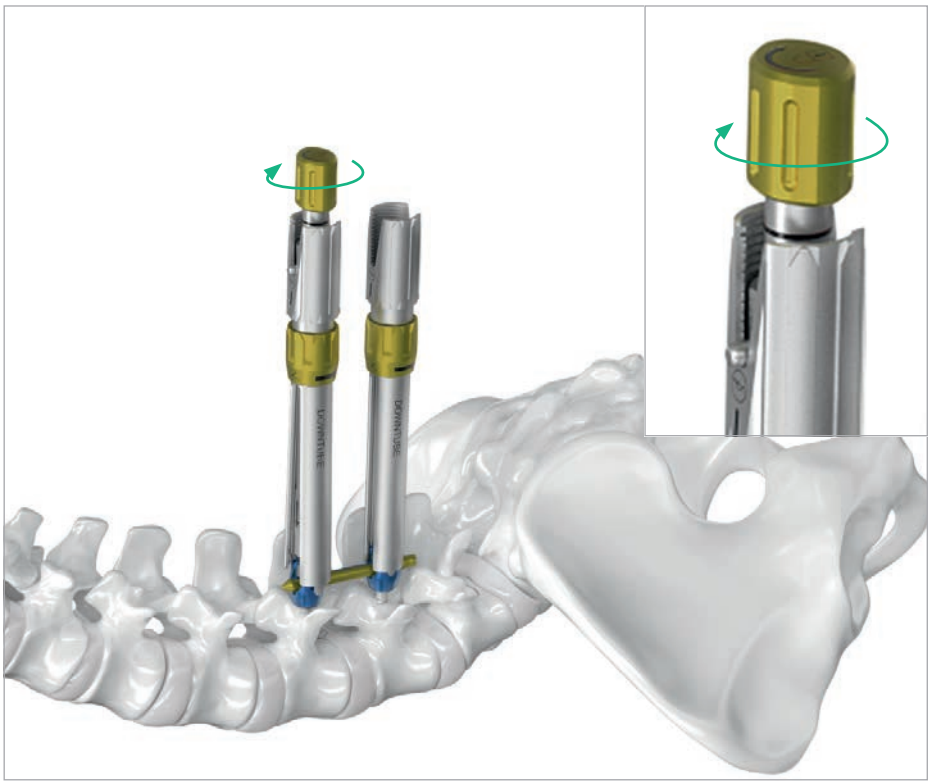
7 | Downtube Removal

- Once all instruments have been removed from the FRI Downtube, the golden ring is turned clockwise until the line marking disappears (1).
- If needed, the Tightening Key may be used to enhance this procedure. Slide the Tightening Key over the FRI Downtube (2) and turn it clockwise (3) until a positive stop is perceived.

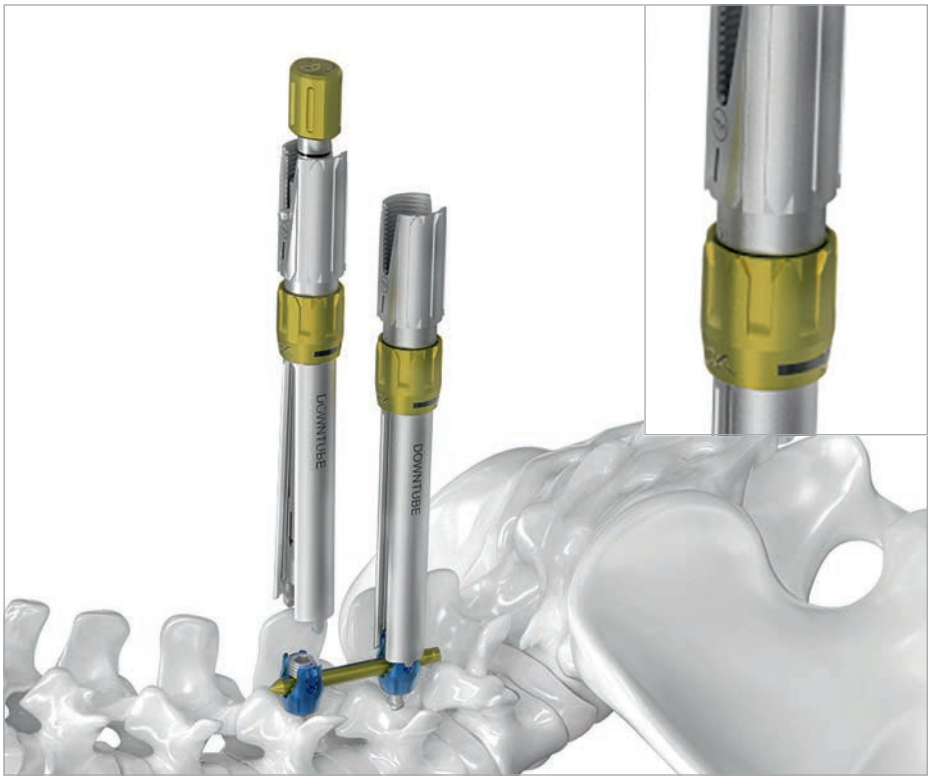


- Ensure that the pins of Removal Key are aligned with the oval shaped distal portion. If needed, hold both pins and turn them counter-clockwise until the stop.
- Slide the Removal Key into the FRI Downtube until the stop.
- Ensure the line marking on the Removal Key is flush with the top of the silver crown of the FRI Downtube.





- Turn the golden knob of the Removal Key clockwise until the stop while firmly holding the silver crown of the FRI Downtube.
- Ensure that the outer sleeve of the FRI Downtube is released and not pulled back. That is, when the golden ring of the FRI Downtube is not touching the silver crown.



- Disengage the FRI Downtube from the pedicle screw head by pulling the golden knob of the Removal Key off the patient.
- Turn the golden knob of the Removal Key counter-clockwise in order to bring the instrument into its initial position.

8 | Ennovate® Instruments

Handles

SZ222R
Ennovate® Ratchet Handle, Straight

SZ224R
Ennovate® Ratchet Handle, T-Shape

SZ225R
Ennovate® Ratchet Handle, Drop Shape

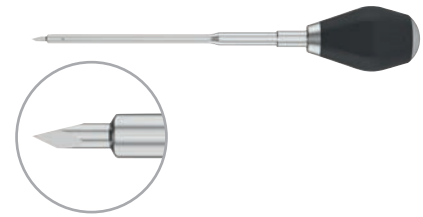
SZ228R
Ennovate® Torque Wrench Handle, 10 Nm

SZ390R
Ennovate® Reduction/Tightenting Handle

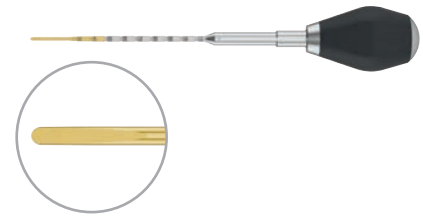
SZ392R
Ennovate® Counter Torque Handle

FW237R
Ennovate® FRI Tightening Handle

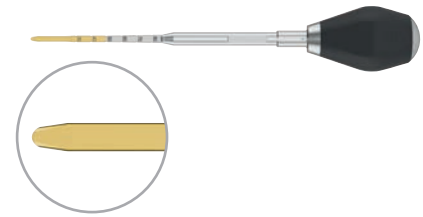
Preparation Instruments – OPEN Workflow



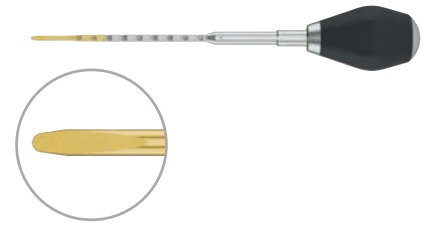
SZ241R
Ennovate® Pedicle Awl



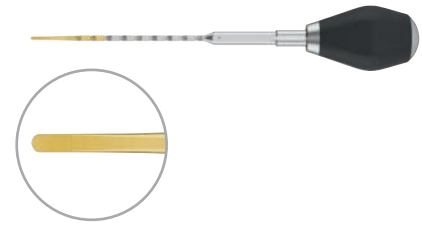
SZ242R
Ennovate® Lumbar Pedicle Probe, Straight, Blunt tip



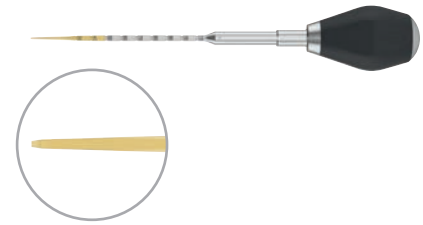
SZ376R
Ennovate® Lumbar Pedicle Probe, Straight, Canulated



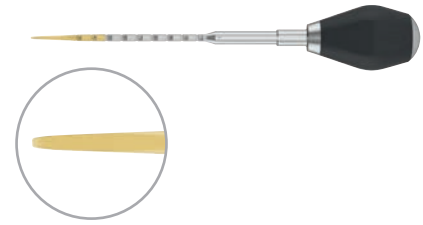
SZ263R
Ennovate® Lumbar Pedicle Probe, Large, Straight, Blunt tip



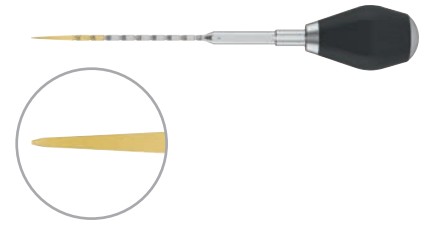
SZ243R
Ennovate® Lumbar Pedicle Probe, Curved, Blunt tip



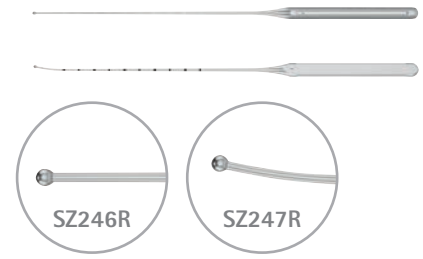
SZ244R
Ennovate® Thoracic Pedicle Probe, Straight, Sharp tip



SZ264R
Ennovate® Thoracic Pedicle Probe, Large, Straight, Sharp tip

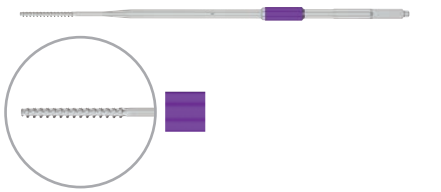


SZ245R
Ennovate® Thoracic Pedicle Probe, Curved, Sharp tip

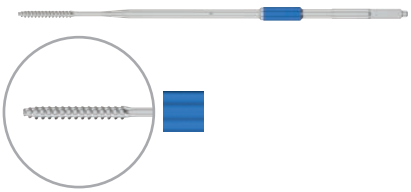


SZ246R/SZ247R
Ennovate® Pedicle Sounder, Straight/Curved

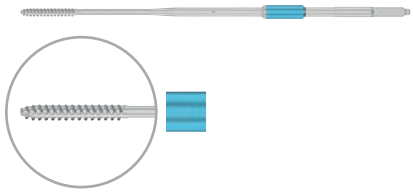
Preparation Instruments – OPEN Workflow



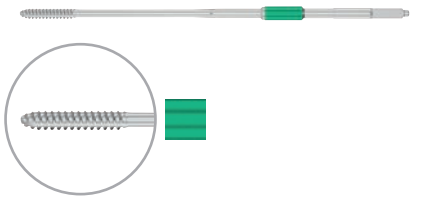
SZ254R
Ennovate® Screw Tap for Ø 4.5 mm, Canulated



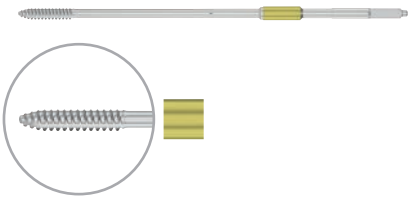
SZ255R
Ennovate® Screw Tap for Ø 5.5 mm, Canulated



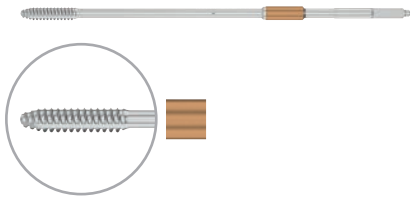
SZ256R
Ennovate® Screw Tap for Ø 6.5 mm, Canulated



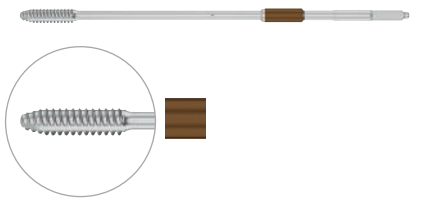
SZ257R
Ennovate® Screw Tap for Ø 7.5 mm, Canulated



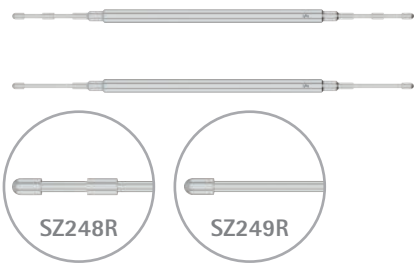
SZ258R
Ennovate® Screw Tap for Ø 8.5 mm, Canulated



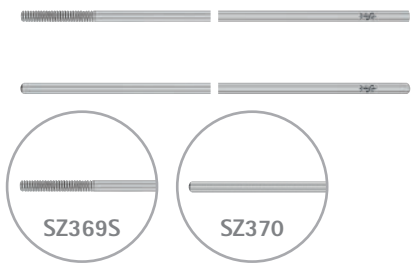
SZ259R
Ennovate® Screw Tap for Ø 9.5 mm, Canulated



SZ260R
Ennovate® Screw Tap for Ø 10.5 mm, Canulated



SZ248R/SZ249R
Ennovate® Pedicle Marker, Dual Band/Single Band

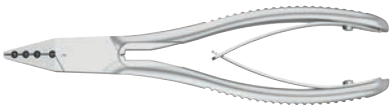


SZ369S/SZ370
Ennovate® Guide Wire, Stainless Steel/Nitinol

Preparation Instruments – Minimally Invasive Workflow

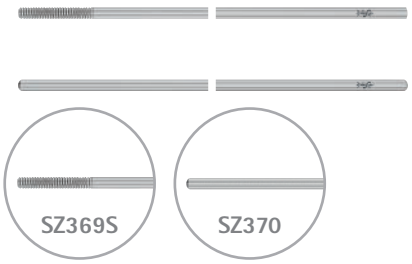
SZ466R
Ennovate® Bone Access Needle Handle, re-usable

SZ465R
Ennovate® Bone Access Needle Trocar, re-usable

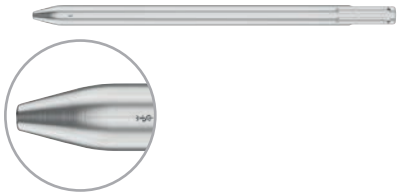


SZ367R
Ennovate® Guide Wire Forceps

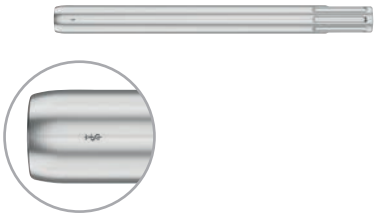
SZ368R
Ennovate® Hammer, Slotted



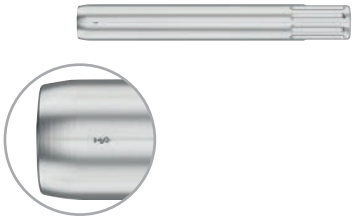
SZ369S/SZ370
Ennovate® Guide Wire, Stainless Steel/Nitinol



SZ372T
Ennovate® Dilator, Small



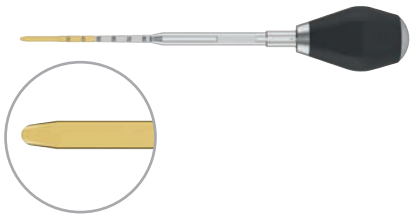
SZ373T
Ennovate® Dilator, Medium



SZ374T
Ennovate® Dilator, Large

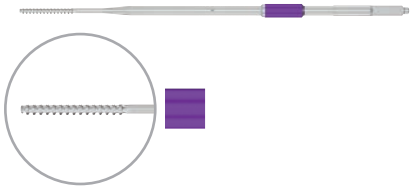
SZ375T
Ennovate® Dilator, Handle

Preparation Instruments – Minimally Invasive Workflow

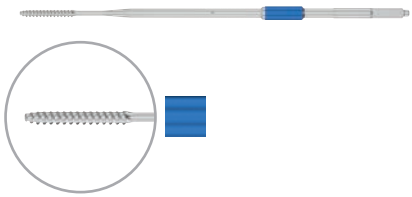


SZ376R
Ennovate® Lumbar Pedicle Probe, Straight, Canulated

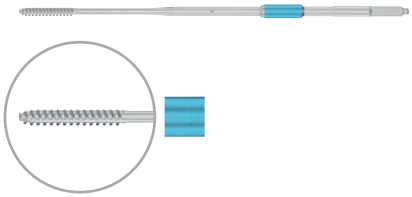
SZ377R
Ennovate® Screw Length Gauge



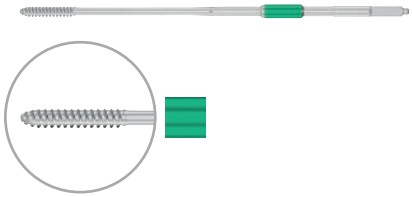
SZ254R
Ennovate® Screw Tap for Ø 4.5 mm, Canulated



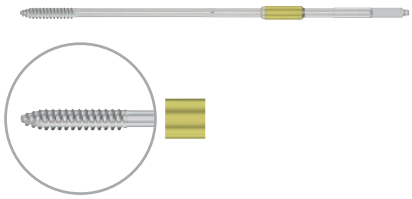
SZ255R
Ennovate® Screw Tap for Ø 5.5 mm, Canulated



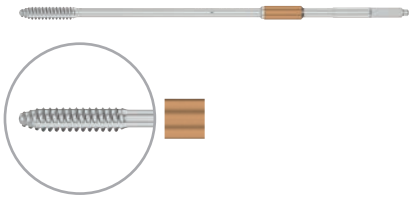
SZ256R
Ennovate® Screw Tap for Ø 6.5 mm, Canulated



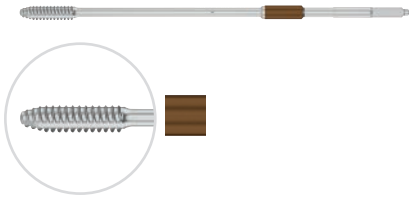
SZ257R
Ennovate® Screw Tap for Ø 7.5 mm, Canulated



SZ258R
Ennovate® Screw Tap for Ø 8.5 mm, Canulated



SZ259R
Ennovate® Screw Tap for Ø 9.5 mm, Canulated



SZ260R
Ennovate® Screw Tap for Ø 10.5 mm, Canulated

Implantation Instruments

SZ405R
Ennovate® FRI Downtube

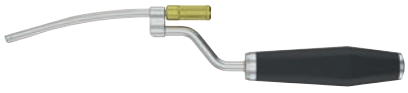
SZ379R
Ennovate® Tightening Key for Downtube

SZ381R
Ennovate® MIS/FRI Screwdriver

SR138SU
Ennovate® MIS Injection Cannula

SR139R
Ennovate® MIS Cannula Sleeve

SZ382R
Ennovate® Rod Length Gauge



SZ384R
Ennovate® MIS/FRI Rod Inserter, Tilted

SZ385R
Ennovate® MIS/FRI Rod Inserter, Straight

SZ387R
Ennovate® MIS/FRI Rod Indicator

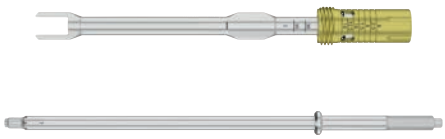
8 | Ennovate® Instruments

Reduction and Manipulation Instruments

SZ393R
Ennovate® PolyLock® Key

SZ406R
Ennovate® MIS/FRI Insert Pusher

SZ270R
Ennovate® Rod Bender



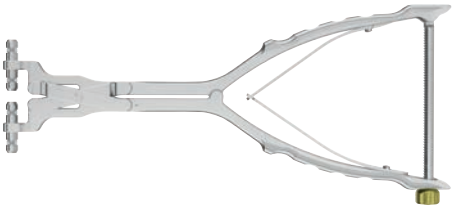
SZ407R/SZ408R
Ennovate® MIS/FRI Rod Pusher + Set Screw Driver

SZ380R
Ennovate® Removal Key for MIS/FRI Downtube

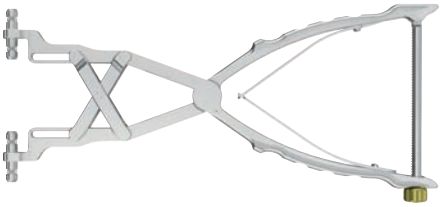
SZ399R
Ennovate® MIS/FRI Alignment Tool

FW692R
Ennovate® Instrument Cleaning Device

Compression and Distraction Instruments

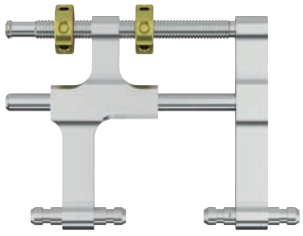


SZ231R
Ennovate® MIS/FRI Parallel Distractor Handle



SZ232R
Ennovate® MIS/FRI Parallel Compressor Handle

SZ396R
Ennovate® Cage Sleeves for MIS/FRI Parallel Distractor Handle



FW238R
Ennovate® FRI Parallel Compression/Distraction Frame

SZ411R
Ennovate® FRI Arms for Parallel Compression/Distraction Frame

SZ412R
Ennovate® FRI C-Ring for Compression/Distraction Spindle

FW241R
Ennovate® FRI Compression/Distraction Spindle

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