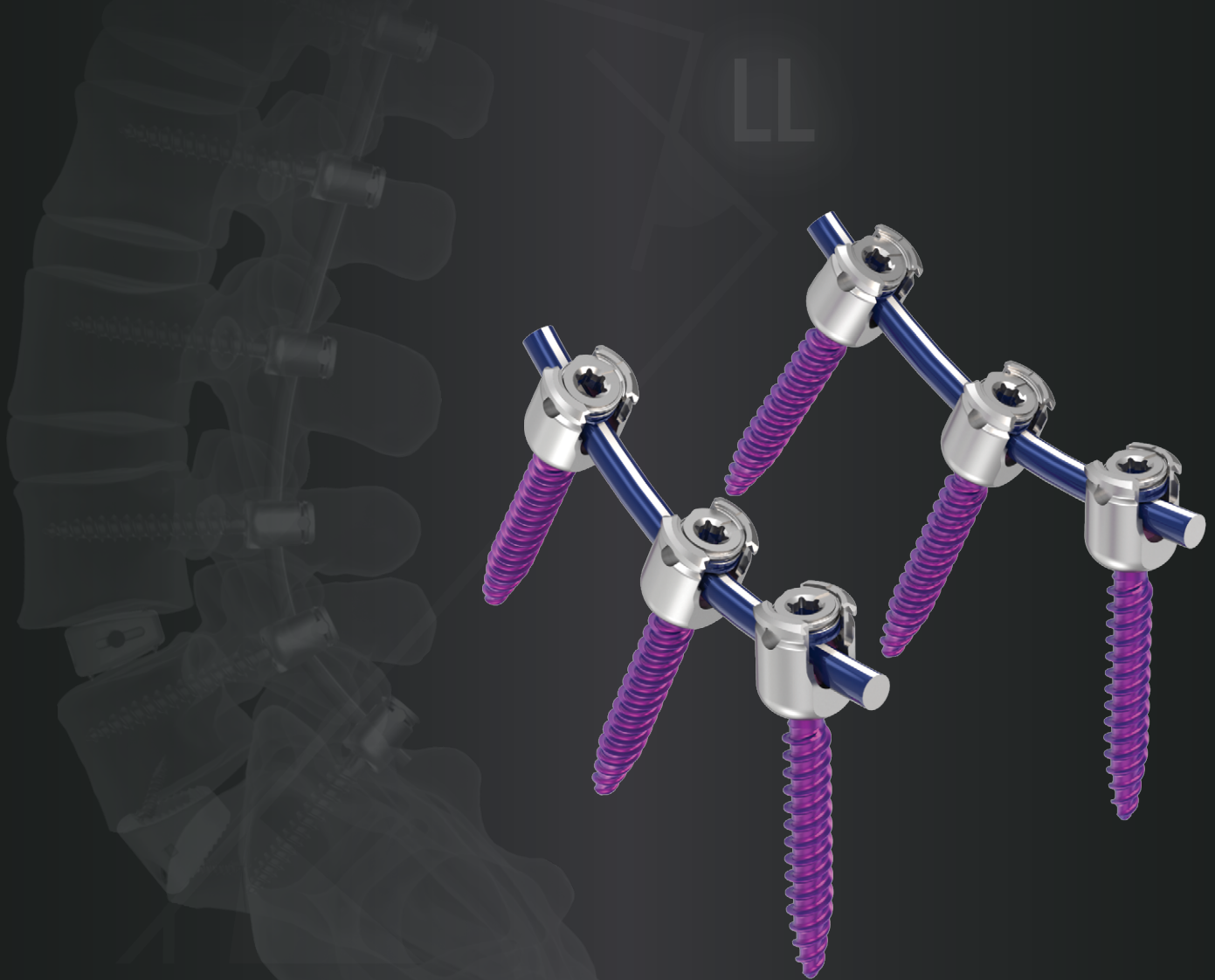


RELINE™

Open System Review Guide



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RELINE™ OPEN SYSTEM REVIEW GUIDE

SYSTEM OVERVIEW

UNIVERSAL TULIP FOR CANNULATED AND SOLID SHANKS

- The Reline screw tulip is capable of accommodating rod diameters of 5.0mm, 5.5mm, and 6.0mm in titanium (Ti) and cobalt chrome (CoCr). The external tulip engagement features allow for instrument compatibility across MAS® and traditional Open approach systems.

ADVANCED HELICAL FLANGE® LOCKING MECHANISM

- The Helical Flange locking mechanism features interlocking flanges between the screw tulip and the lock screw. The interlocking flanges create inward directed forces as the lock screw is delivered into the tulip to limit cross threading and head splay providing reliable performance in construct assembly.

DOUBLE LEAD SHANK THREAD FORM

- Advances with ½ the turns of a single lead thread to increase the efficiency of screw insertion.
- The same thread form was applied across all screw designs.

MULTIPLE ROD SIZES AND MATERIALS

- 5.0, 5.5, and 6.0mm rods offered in Ti and CoCr.
- Pre-bent kyphotic-lordotic rods reduce rod contouring time and minimize rod notching.
- Tapered diameter rods offer differential rod stiffness along the length of the rod yielding a softer landing at the proximal end of the construct.

PROCEDURALLY DESIGNED IMPLANT PORTFOLIO

- Polyaxial, polyaxial reduction, monoaxial (fixed), uniplanar, reduction uniplanar, provisional locking screw, open and closed iliac screws.
- Full range of rod-rod connectors for linking 5.0, 5.5, 6.0 and 6.35mm rods.
- Low-profile adjustable and fixed cross connectors to reduce axial torsion of a construct.
- Anatomically designed hook portfolio for alternative fixation.






HIGHLY REFINED INSTRUMENTATION

- Multi-functional screwdriver compatible with polyaxial and reduction screws.
- Joystick head adjuster to control the tulip during engagement of reducers over a rod.
- Multi-load Lock Screw Starter holds up to 8 lock screws for efficient set screw delivery.
- Silencer reducer snaps onto the tulip to provide up to 45mm of powerful, controlled reduction for translation or derotation maneuvers and removes with quick release buttons.
- Matador Reducer provides single-handed, quick reduction up to 12mm.
- The Gator Reducer clamps onto the tulip providing more flexibility in capturing a medialized or lateralized rod and enables up to 35mm of reduction.
- Three column osteotomy set incorporates a retractor for controlled reduction of PSOs while restoring lordosis.
- Vertebral derotation system requires minimal assembly and accommodates segmental and en bloc techniques.
- Adjacent Segment Fixation tray designed with a variety of rod-rod connectors and specialized instrumentation for minimally disruptive revision surgery.

RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

SCREW DESIGN

FEATURE	BENEFIT
<p>MULTI-ROD DIAMETER COMPATIBILITY</p> 	<ul style="list-style-type: none"> • Tulip accepts 5.0, 5.5 and 6.0mm rods in Ti and CoCr to accommodate a variety of strength and stiffness preferences. • Tapered diameter rods provide differential rod stiffness along the construct.
<p>LOW-PROFILE TULIP DESIGN – 15mm</p>	<ul style="list-style-type: none"> • Minimizes screw prominence. • Low-profile for thoracic applications in Adolescent Idiopathic Scoliosis (AIS) cases.
<p>MULTIPLE INSTRUMENT ENGAGEMENT FEATURES HIGH ON THE TULIP</p> 	<ul style="list-style-type: none"> • Seamless Open and MAS® instrument engagement. • Secure engagement with 6 points of attachment for MAS Guides. • Simplifies instrument attachment by minimizing interference with bony anatomy.
<p>HELICAL FLANGE® LOCKING MECHANISM</p> 	<ul style="list-style-type: none"> • Reduces the propensity to cross thread by simplifying thread alignment and provides tactile feedback. • Interlocking flanges designed to constrain head splay. • Provides predictable performance throughout the procedure.
<p>FULLY THREADED DOUBLE LEAD SHANK</p> 	<ul style="list-style-type: none"> • Featured on all screw designs. • Increased efficiency of screw insertion. • Advances with ½ the turns of a single lead thread. • Translates 5.5mm per full revolution. • Simplifies thread engagement into bone. • Aids starting the screw in hard bone and eliminates the need for tapping.
<p>ROBUST C-STAR 25 DRIVE FEATURE</p> <p>C-Star 25 Minor T25 Minor</p> 	<ul style="list-style-type: none"> • C-Star 25 shank drive feature incorporates a larger minor diameter which increases the overall strength of the driver and decreases its propensity to shear.

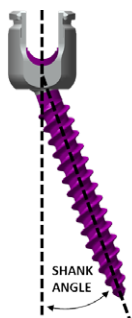
RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

COMPETITIVE TULIP DIMENSIONS

SYSTEM (ROD SIZE)	PROFILE HEIGHT (mm)	RUN-ON-ROD BOTTOM (mm)	RUN-ON-ROD TOP (mm)	MEDIAL/LATERAL BOTTOM (mm)	MEDIAL/LATERAL TOP (mm)
EXPEDIUM (5.5mm)	14.5	11.0	11.0	10.7	13.0
SOLERA (4.75mm)	14.8	10.8	8.3	10.7	10.3
CREO (5.5mm)	14.8	11.0	8.6	11.0	12.2
PRECEPT® (5.5mm)	15.0	10.9	9.1	10.9	12.6
RELINE (5.0-6.0mm)	15.0	10.9	9.9	10.2	13.0
LEGACY (5.5mm)	15.8	13.2	8.25	13.2	13.2
ARMADA® (5.5mm)	16.0	11.4	9.6	11.9	13.7
SOLERA (6.0mm)	17.0	11.1	9.3	11.2	12.7

RELINE TULIP ANGULATION



POLYAXIAL SCREW ANGULATION

SOLID SHANK DIAMETER (mm)	CANNULATED SHANK DIAMETER (mm)	MAX TOTAL ANGULATION
4.0 – 5.0	--	64°
5.5	4.0 – 5.5	61°
6.0	6.0	59°
6.5	6.5	53°
7.0 – 12.5	7.0 – 12.5	52°

UNIPLANAR SCREW ANGULATION

SOLID SHANK DIAMETER (mm)	MAX TOTAL ANGULATION
4.0 – 5.0	53°
5.5	49°
6.0	47°
6.5	42°

PLS SCREW ANGULATION

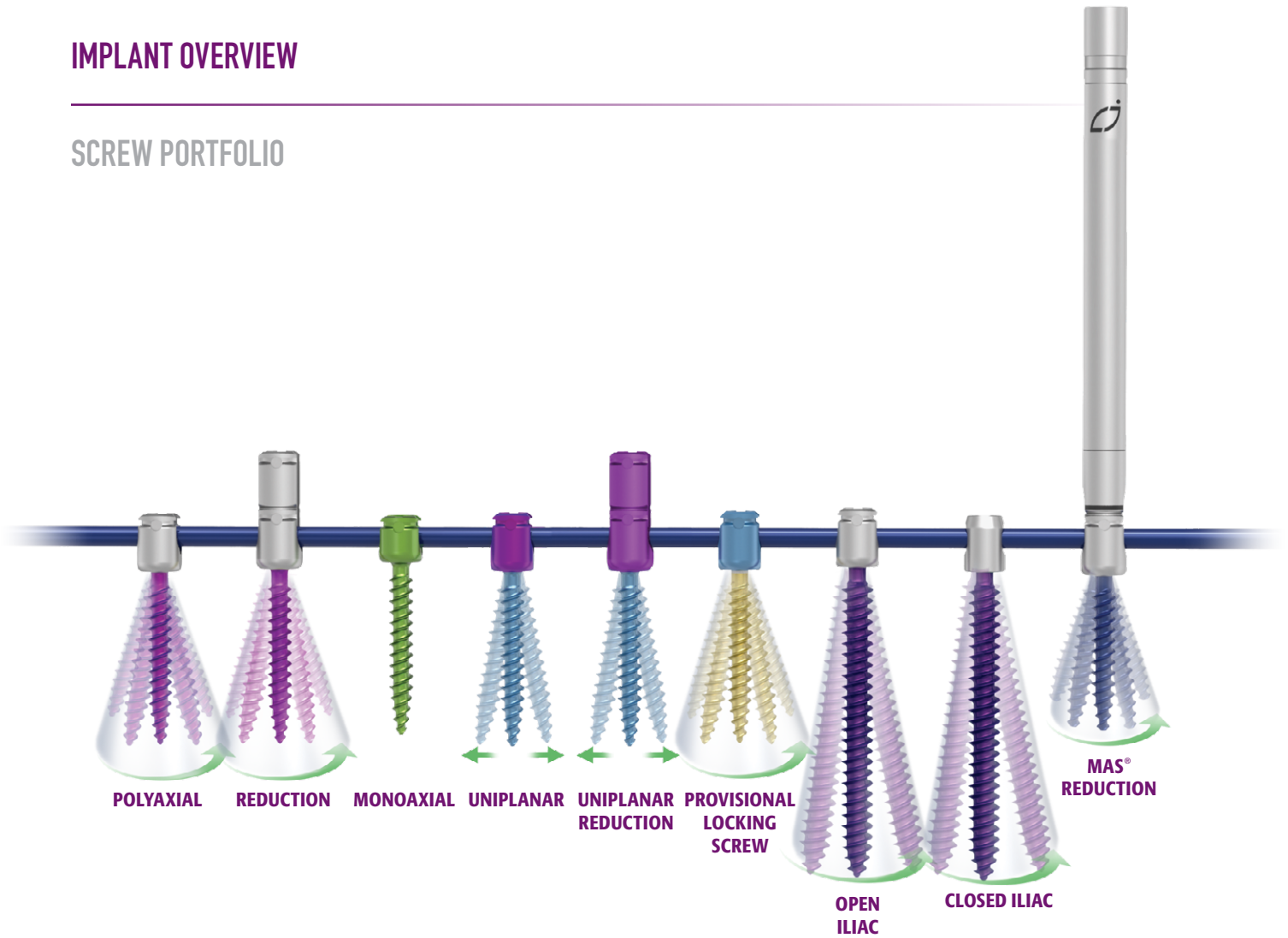
SOLID SHANK DIAMETER (mm)	MAX TOTAL ANGULATION
4.0 – 5.0	60°
5.5	57°
6.0	55°
6.5	51°
7.0 – 7.5	46°

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RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

SCREW PORTFOLIO



POLYAXIAL SCREW

- The most common screw type for pedicular and iliac fixation.
- Available in solid and cannulated shanks.
- Up to 60° of total angulation to simplify rod seating.

REDUCTION SCREW

- Reduction screws are polyaxial screws with extended tulips.
- They are most commonly used to reduce spondylolisthesis or for translation maneuvers during deformity correction.
- Up to 60° of total angulation to simplify rod seating.

Note: Do not use the Silencer or Gator Reducer on Reduction or Reduction Uniplanar Screws. Only the Matador Reducer and Rocker are compatible.

RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

SCREW PORTFOLIO (CONT.)

PROVISIONAL LOCKING SCREW (PLS)

- Used for parallel compression and distraction or derotation maneuvers.
 - True parallel compression and distraction.
 - Maintains sagittal alignment.
 - Fully distracted disc space eases interbody placement.
 - Vertebral body derotation.
 - Correct axial rotation of vertebral bodies.
- Provides the flexibility of a polyaxial screw by simplifying screw insertion and rod seating, and the control of a fixed angle screw upon locking.
 - 40° of total angulation.
 - Polyaxial motion locks into a fixed orientation once the rod is fully reduced.
 - The PLS is locked into a fixed orientation using the Silencer or Gator Reducer, Guide Counter-torque, Reduction Bell and Torque T-handle.
- Unlike competitive screws with this functionality, the PLS tulip has the same dimensions as the standard polyaxial screw.

MONOAXIAL (FIXED) SCREW

- Typically used for maneuvers requiring rigid fixation to the spine.
- Ideal for derotation or trauma applications.
- Lowest profile screw design.

CLOSED TULIP ILIAC SCREW

- Offers a low-profile tulip (14.5mm) to minimize screw prominence, the leading reason for iliac screw removal.
- Rods must be side loaded into the screw or connected via offset connectors.

Note: *Must use the Closed Tulip Lock Screw.*

UNIPLANAR AND UNIPLANAR REDUCTION SCREW

- Uniplanar screws are offered in standard and extended tulip designs.
- Offers the deformity correction of a fixed screw with the rod placement abilities of a polyaxial screw.
- Improves coronal plane correction while preserving sagittal plane alignment.
 - 60° of angulation restricted to the sagittal plane (cephalad/caudal direction).
 - Enables derotation maneuvers in the transverse plane (medial/lateral direction).

Note: *Do not use the Silencer or Gator Reducer on Reduction or Reduction Uniplanar Screws. Only the Matador Reducer and Rocker are compatible.*

RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

LOCK SCREWS

5.5mm AND 6.0mm LOCK SCREWS

- 5.5mm lock screws are half anodized dark blue and 6.0mm lock screws are half anodized teal; both must be inserted silver side up.
- The 5.5mm lock screw will sit flush with the tulip on a 5.5mm rod, 0.5mm proud on a 6.0mm rod and 0.5mm recessed on a 5.0mm rod.
 - 5.5mm lock screws are standard in the core implant tray.
- The 6.0mm lock screw will sit flush with the tulip on a 6.0mm rod, 0.5mm recessed on a 5.5mm rod and 1mm recessed on a 5.0mm rod.
 - 6.0mm lock screws only come in the 6.0mm long rod tray.
- Helical Flange® locking mechanism.
 - Interlocking flanges resist spreading forces to minimize head splay.
 - Reduces the propensity to cross thread by simplifying thread alignment.
- T27 cannulated hexalobe drive feature.
- Used for all open tulip screws, offset connectors and hooks.

Note: Either lock screw may be used interchangeably with any rod diameter, but to accommodate surgeon preference to have set screws flush with the tulip on 5.5mm and 6.0mm rods, both options are provided.

CLOSED TULIP LOCK SCREW

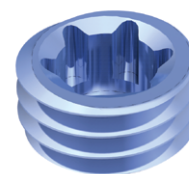
- Closed tulip lock screws are anodized light blue.
- Used for the closed iliac screw, closed offset connectors and closed rod-rod connectors.
- T27 hexalobe drive feature.
 - Due to the smaller diameter, the closed lock screw drive feature is not cannulated to increase surface contact on the rod.



5.5mm LOCK SCREW



6mm LOCK SCREW



CLOSED TULIP LOCK SCREW

RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

RODS

TITANIUM

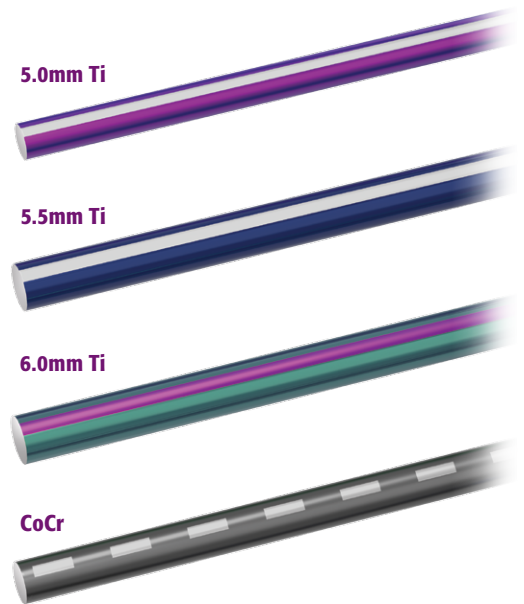
- Available in 5.5 and 6.0mm diameters.
 - 5.5mm rods offered pre-bent from 30mm to 120mm and straight at 300mm and 500mm.
 - 6.0mm rods offered straight at 300mm and 500mm.
- Long straight rods (200mm+).
 - Hex ended for engagement with the rod rotation wrench.
 - Marked with a longitudinal line to aid in maintaining bends along the same plane.

COBALT CHROME

- Available in 5.0, 5.5 and 6.0mm diameters.
 - 5.0mm available 500mm straight.
 - 5.5mm available in 300, 500, 600mm straight and pre-bent short up to 120mm.
 - 6.0mm available in 300, 500 and 600mm.
- Long straight rods (200mm+).
 - Hex ended for engagement with the rod rotation wrench.
 - Marked with a longitudinal line to aid in maintaining bends along the same plane.
- Superior fatigue and stiffness properties vs. titanium.
 - The reduced notch sensitivity of cobalt chrome makes it an ideal alloy for use in deformity applications that require significant rod contouring.
 - The stiffness of cobalt chrome improves the rods ability to maintain correction.
- Less image artifact than SS, and compatibility with titanium screws.
 - Postoperative MRI or CT imaging is not compromised.

PRE-BENT KYPHOTIC/LORDOTIC RODS

- 500mm rods in Ti and CoCr.
- Feature pre-bent Kyphotic (45°) and Lordotic (35°) sections to reduce operative rod contouring time and minimize notching.
- Lordotic section is 150mm, Kyphotic section is 350mm.



RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

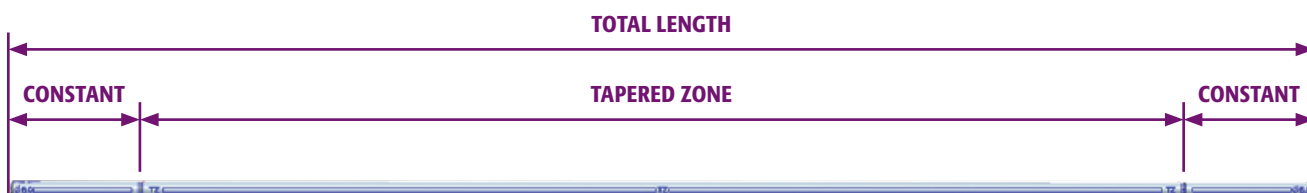
RODS (CONT.)

TAPERED DIAMETER RODS

- Available in Ti and CoCr.
- Tapered diameter options:
 - 5.5mm to 5.0mm – gradually tapers 0.5mm over a 200mm tapered zone.
 - 6.0mm to 5.0mm – gradually tapers 1.0mm over a 400mm tapered zone.

Note: Cross connectors are not compatible on tapered rod sections, but can be used on the constant diameter sections.

DIAMETER (mm)	TOTAL LENGTH (mm)	LENGTH SEGMENTS (mm)		
		CONSTANT	TAPERED ZONE	CONSTANT
5.5 – 5.0	300	50	200	50
	400	100	200	100
	500	150	200	150
	600	200	200	200
6.0 – 5.0	500	50	400	50
	600	100	400	100

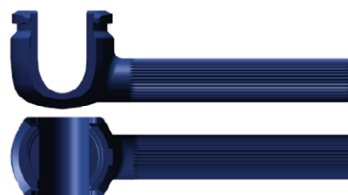


OFFSET ILIAC CONNECTORS

- Designed to simplify linking iliac screws to the rod.

OPEN TULIP OFFSET CONNECTOR

- The open tulip design simplifies rod seating.
- Use the unilateral implant holder to insert into an iliac screw.



CLOSED TULIP OFFSET CONNECTOR

- The closed tulip design minimizes implant size to reduce prominence.
- Must use the Closed Tulip Lock Screw.



RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

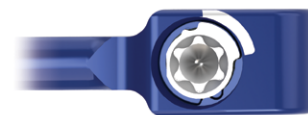
CROSS CONNECTORS

LOW-PROFILE ADJUSTABLE (LPA) CROSS CONNECTOR

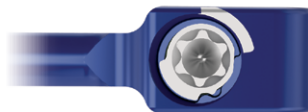
- Low-profile to minimize prominence above the rod.
- Size offerings are color coded:
 - 30-35mm – Light Blue
 - 35-42mm – Magenta
 - 40-50mm – Green
 - 45-65mm – Gold
- The locking mechanisms utilize a T20 male Hexalobe drive feature and are locked at 40 in-lbs. using the Cross Connector Torque T-handle and Driver.
 - The locking mechanism to the rod is a cam design that requires a 180° rotation from the unlocked to the locked position which is achieved at 40 in-lbs of torque. In its locked position the large diameter of the cam overlaps the non-anodized section on the connector for visual confirmation.
 - The center locking mechanism locks with 40 in-lbs of torque using the LPA Center Guide.
- Do not over rotate the cam as this may damage the locking mechanism. The connector should be replaced if this occurs.
- Multiple points of motion simplify seating on the rod.



LOCKED



UNLOCKED



FIXED CROSS CONNECTOR

- Low-profile to minimize prominence above the rod.
- 5.5mm (blue) and 6.0mm (teal) rod options.
- Size offerings:
 - 20-35mm in 2.5mm increments
- Accommodates bending:
 - The overall length can be adjusted by changing the curvature.
 - Can be adjusted to fit across non-parallel rods.
- Cam locking mechanism:
 - The locking mechanism to the rod is a cam design that requires a 180° rotation from the unlocked to the locked position which is achieved at 40 in-lbs of torque. In its locked position the large diameter of the cam overlaps the non-anodized section on the connector for visual confirmation.
 - Do not over rotate the cam as this may damage the locking mechanism. The connector should be replaced if this occurs.



RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

ROD-ROD CONNECTORS




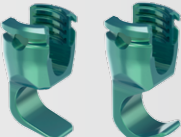
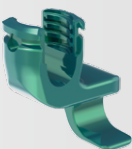
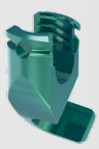
- Connect to multiple rod diameters:
 - 5.0mm to 6.0mm connectors accept 5.0, 5.5 or 6.0mm rods on both sides (silver).
 - 5.0mm to 6.0mm/5.0mm to 6.35mm connectors accept 5.0, 5.5 or 6.0mm rods on one side (silver) and 6.35mm rods on the adjacent side (green).
- Open tulips accept either the 5.5 or 6.0mm Open Tulip Lock Screw, closed tulips accept the Closed Tulip Lock Screw.
- Insertion options: Angled threaded inserter, Angled inserter, Unilateral inserter.

CONNECTOR TYPE	DESIGN RATIONALE	CONNECTOR IMAGE
OPEN-OPEN CONNECTOR	<ul style="list-style-type: none"> • Designed for primary or revision cases to connect onto existing constructs. • Ideal for cantilever techniques when connecting two overlapping rods. 	
ROTATING OPEN-OPEN CONNECTOR	<ul style="list-style-type: none"> • Similar to the open-open design with a rotational feature to enable greater sagittal plane flexibility. • Ideal for adding a second rod when spanning a PSO. • Must be used in sets of 2 when connecting a rod. 	
OPEN-HOOK CONNECTOR	<ul style="list-style-type: none"> • Ideal design for revision cases to connect onto existing constructs using the unilateral inserter. 	
ROTATING OPEN-HOOK CONNECTOR	<ul style="list-style-type: none"> • Similar to the open-hook design with a rotational feature to enable greater sagittal plane flexibility. • Must be used in sets of 2 when connecting a rod. 	
2-HOLE IN-LINE CONNECTOR	<ul style="list-style-type: none"> • Connects rods end-to-end. • Includes a viewing window to ensure full lock screw coverage over the rod. • 2-Hole connectors engage 1 lock screw per rod. 	
4-HOLE IN-LINE CONNECTOR	<ul style="list-style-type: none"> • Connects rods end-to-end. • Includes a viewing window to ensure full lock screw coverage over the rod. • 4-Hole connectors engage 2 lock screws per rod. 	
PARALLEL CONNECTOR	<ul style="list-style-type: none"> • Designed for primary or revision cases to connect onto existing constructs. • A second option to the open-open connector for cantilever techniques when connecting two overlapping rods. 	

RELINE™ OPEN SYSTEM REVIEW GUIDE

IMPLANT OVERVIEW

HOOKS

HOOK TYPE	DESIGN RATIONALE	HOOK IMAGE
<p>PEDICLE HOOK</p>	<ul style="list-style-type: none"> • Used in the thoracic spine from T1-T10 and placed in an upgoing or cephalad direction. • The Pedicle Hook is designed with a bifid extension that resists rotation forces once engaged around the pedicle. • The Pedicle Hook is offered in two throat sizes, small (6mm) and medium (8mm). 	
<p>LAMINAR HOOK</p>	<ul style="list-style-type: none"> • Laminar hooks are placed either suprolaminarly (downgoing) or infralaminarly (upgoing) depending upon whether compressive or distractive forces are going to be applied. • Suprolaminar and infralaminar hooks may also be used in a claw configuration (two hooks placed in opposite direction) at the end of a construct in order to form a solid base. • The Laminar Hook is offered in three throat sizes; small (6mm), medium (8mm) and large (10mm). 	
<p>TRANSVERSE PROCESS (TP) HOOK</p>	<ul style="list-style-type: none"> • Transverse Process (TP) Hooks can be used in the thoracic spine typically between T1 – T10. • The Transverse Process Elevator is used to expose the cranial edge of the transverse processes superperiosteally ensuring firm purchase along the superior edge of the transverse process. • TP hooks are placed firmly against the superior transverse process ridge at the midpoint of the mediolateral portion of the transverse process. 	
<p>UP AND DOWN ANGLED HOOK</p>	<ul style="list-style-type: none"> • Up and Down Angled Hooks can be used to form a “claw” construct across the lamina with the Up Angled Hook facing cephalad and the Down Angled Hook facing caudal. 	
<p>OFFSET HOOK</p>	<ul style="list-style-type: none"> • Offset Hooks aid in placement of the hook closer to the midline of the spine and are available in left and right styles. • This hook is most commonly used on the lamina. 	
<p>ANGLED HOOK</p>	<ul style="list-style-type: none"> • Angled Hooks aid in placement of the hook closer to the midline of the spine and are available in left and right styles. • This hook is most commonly used on the lamina or transverse process. 	

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RELINE CORE INS. TRAY 1 (RELCOREIN1) – TOP LEVEL

RATCHETING HANDLES

QUICK CONNECT HANDLES

NuVasive® Handle, Straight Long Ratchet (10000600)

NuVasive T-handle, Ratchet (10000604)

Reline Core Ins. Tray 1, Top Level

- Features a “quick connect” mechanism to easily attach instruments by pushing them into the handle.
- Incorporates a 3-position ratchet: Forward drive (right most position), Locked (middle position), and Reverse drive (left most position).
- ¼” square drive works with all taps and drivers.
- Available in Straight and T-handle styles
 - The straight handle grip enables the delivery of torque in a controlled and comfortable manner.
 - The T-handle grip enables the delivery of a higher amount of torque.



PEDICLE PREPARATION

COMMON PEDICLE PREPARATION FEATURES

- All gearshift probes, pedicle probes and taps feature a 10mm dark band between 40-50mm
- Gearshift probes are depth marked every 10mm up to 120mm.
- Straight probes are lasermarked with an “S”, curved probes are lasermarked with a “C”.
- Thoracic probes have gray handles, lumbar probes have purple handles, and the iliac probe has a black handle.
- The flat region of the handle indicates the direction of curvature.
- The choice between a Lumbar Straight Gearshift Probe and Thoracic Curved Gearshift Probe is based on surgeon preference.
- The Thoracic Curved Gearshift Probe may be used with any screw diameter. The Lumbar Straight Gearshift Probe should only be used with screw sizes 5.5mm or greater because the diameter of the probe is greater than the minor diameter of the 4.5mm screw. Using the Lumbar Straight Gearshift Probe with a 4.5mm screw may compromise screw purchase.



CURVED GEARSHIFT

Reline Gearshift Probe, Thoracic Curved (10000613)

Reline Core Ins. Tray 1, Top Level

- Typically preferred for thoracic pedicle preparation.
- The flat side of the handle indicates the curve direction of the tip.
- Gray silicone handle for visual differentiation.
 - Hole diameter by length along the Thoracic Curved Gearshift Probe.



LENGTH (mm)	0.5	10	20	30	35	40
DIAMETER (mm)	1.4	3.5	3.9	4.2	4.3	4.3

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RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 1 (RELCOREIN1) – TOP LEVEL

PEDICLE PREPARATION (CONT.)

STRAIGHT GEARSHIFT

Reline Gearshift Probe, Lumbar Straight (10000612)
 Reline Core Ins. Tray 1, Top Level

- Common design for lumbar pedicle preparation.
- Purple silicone handle for visual differentiation.
 - Hole diameter by length along the gearshift tip.



LENGTH (mm)	0.5	10	20	30	35	40
DIAMETER (mm)	1.5	4.0	4.5	4.9	5.0	5.0

BALL TIP PEDICLE PROBES

Reline Pedicle Probe, Dual Ball Tip (10000610)
 Reline Core Ins. Tray 1, Top Level



- Ball tip pedicle probes are used to evaluate pedicle wall integrity after using the gearshift probes and taps. The small diameter handle and flexible tips transmit tactile feedback to the surgeon while palpating the pedicle.
- Depth markings start at 30mm and continue up to 80mm in 5mm increments including a dark band between 40-50mm.
- The Dual Ended Probe offers both a stiff and flexible end. The stiff end offers rigidity when verifying the integrity of the anterior cortical wall, while the more flexible side offers a more tactile feel to inspect the lateral walls.

TAPS

Reline Tap, 4.0mm Solid (10000624), 4.5mm Solid (10000625), 5.5mm Solid (10000627), 6.5mm Solid (10000629), 7.5mm Solid (10000631)
 Reline Core Ins. Tray 1, Top Level



- Two aggressive cutting flutes effectively cut threads into cortical and cancellous bone in the pedicle and vertebral body prior to screw insertion.
- The threads extend 40mm from the tip and feature a dark band between 40-50mm to aid in depth assessment.
- Taps are sized to match (“line-to-line”) the diameter of the pedicle screw threads.
- The proximal end features two colored bands that match the color of the corresponding shank diameter.

4.0mm	4.5mm	5.5mm	6.5mm	7.5mm	8.5mm	9.5mm
Bronze	Green	Light Blue	Magenta	Dark Blue	Purple	Light Green

- The NVM5® Dynamic Screw Test ring is located near the handle and rotates independently from the shaft of the tap. This is the attachment point for the NVM5 DST clip and allows the clip to rotate freely, preventing the wire from wrapping around the instrument.

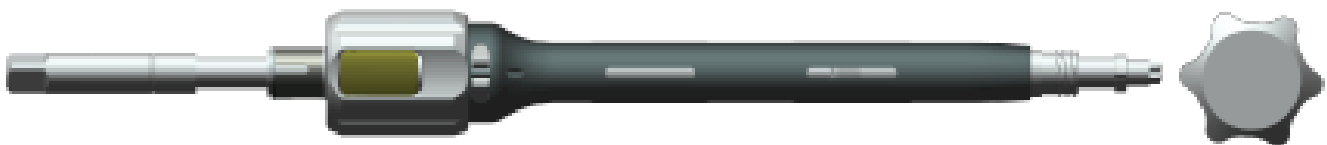
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RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 1 (RELCOREIN1) – MIDDLE LEVEL

SCREW INSERTION

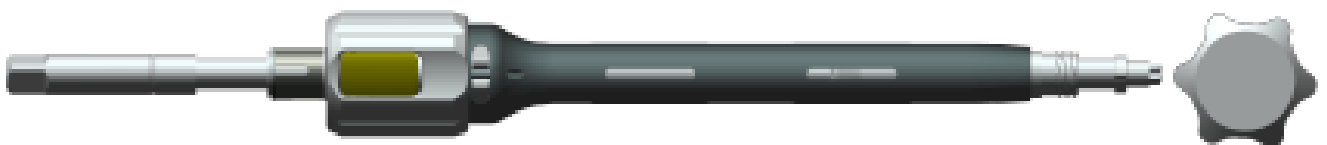
COMMON FEATURES OF SCREWDRIVERS



- Low-profile design minimizes soft tissue interference.
- Distal shaft threads into the screw tulip to ensure secure engagement of the distal drive feature(C-Star 25). The screwdriver bottoms out on the top of the screw shank to ensure the shank remains rigidly aligned with minimal wobble. The C-Star drive has a larger minor diameter as compared to a T25 driver for increased shear resistance. It cannot be used to drive standard T25 shanks.
- An outer free spinning sleeve rotates independently from the driver to prevent catching soft tissue and premature disengagement from the screw during insertion. The sleeve may be removed for cleaning by depressing the silver prongs on the proximal end of the sleeve, just below the knurled knob and sliding distal.
- The main shaft may be retracted to ease loading into screws by depressing the gold button and retracting the main shaft proximally.
- The NVM5® Dynamic Screw Test ring is located near the handle and rotates independently from the shaft of the tap. This is the attachment point for the NVM5 DST clip which allows the clip to rotate freely, preventing the wire from wrapping around the instrument.

OPEN POLY SCREWDRIVER

Reline Screwdriver, Poly Solid (D10000801)
Reline Core Ins. Tray 1, Middle Level

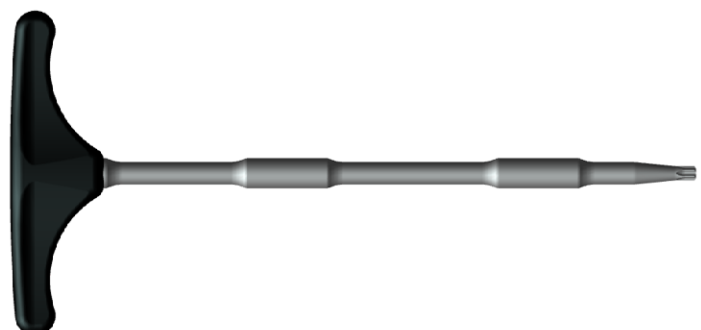


- Compatible with polyaxial, polyaxial reduction, uniplanar, uniplanar reduction, provisional locking screw and open iliac screws. To use with reduction screws, depress the gold button and push the central shaft forward until it stops. The NVM5 ring will be adjacent to the distal “load” lasermarking. The “load” position can also be used to simplify loading polyaxial screws or using the driver as a Shank Adjuster.
- The proximal shaft is lasermarked “Poly Driver.”

SHANK ADJUSTER

Reline Shank Adjuster, Solid (10000718)
Reline Core Ins. Tray 1, Middle Level

- Used to adjust the depth of the screw in the pedicle after insertion.
 - The Screw Adjuster does NOT securely hold the screw, so it should not be offered as an instrument for screw insertion.
- The integrated T-handle eliminates the need to assemble a handle.
- This instrument may be used as an efficient screw removal tool.



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RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 1 (RELCOREIN1) – MIDDLE LEVEL

SCREW INSERTION (CONT.)

HEAD ADJUSTER

Reline Head Adjuster (10000680)
Reline Core Ins. Tray 1, Middle Tray

- Used whenever adjustments need to be made to the position of the screw head.
- After initial insertion, the screw head may be snug or seemingly stuck. This may be due to surrounding bony tissue or the screw being inserted too far, bottoming out the polyaxial screw and preventing its polyaxial motion. The Head Adjuster allows the user to easily reposition and align the screw head(s) prior to rod insertion.
- The end of the Head Adjuster fits precisely within the screw head and enables adjustment of the screw head in the cephalad/caudal or medial/lateral direction.



JOYSTICK HEAD ADJUSTER

Reline Joystick, Head Adjuster (10000681)
Reline Core Ins. Tray 1, Middle Tray

DESIGN RATIONALE

- Enables adjustment of the tulip orientation when a rod is over the tulip but not within it, blocking top down access to the rod slot.
- This instrument can help control the tulip orientation during engagement with a reducer.

Tip: May be used to approach the tulip from a cephalad or caudal direction depending upon the orientation of the tulip and location of the rod.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 1 (RELCOREIN1) – MIDDLE LEVEL

ROD INSERTION

ROD HOLDER

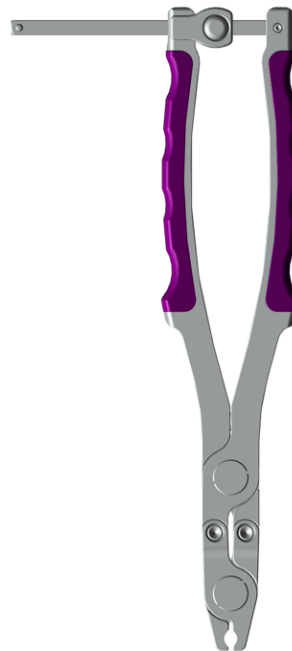
Reline Rod Holder, Open (10000700)
Reline Core Ins. Tray 1, Middle Level

DESIGN RATIONALE

- Used to insert rods and designed for a strong grip to perform rod rotation.
- Strong dual action design provides secure engagement to the rod.
- Single push button design to release the ratchet for removal from the rod.

Tip:

- *Orient the push button on the lateral side (surgeon side) to enable the surgeon to hold the ratchet release button down until the spring loaded arms fully open.*
- *If the button is depressed and released, the arms may not fully open and the button will need to be pressed again.*
- *If the button is difficult to depress, compress the handles further to release tension in the ratchet and attempt to depress the ratchet release button again.*



LOCK SCREW INSERTION

- All Lock Screw Starters feature a T27 distal drive feature and a split ring retention clip to securely hold the lock screw until it has been safely delivered into the implant.

LOCK SCREW STARTER

Reline Lock Screw Starter (10000746)
Reline Core Ins. Tray 1, Middle Level



- Grey silicone handle with purple inlay.
- Used to insert lock screws into screws, hooks and connectors through all reduction devices.
- It is not compatible with the segmental derotation links.
- Large diameter sections keep the Lock Screw Starter centered within reducers to ensure alignment during set screw delivery while minimizing the overall weight.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 1 (RELCOREIN1) – MIDDLE LEVEL

LOCK SCREW INSERTION (CONT.)

MULTI-LOAD LOCK SCREW STARTER

Reline Lock Screw Starter, Multi (10000707)
Reline Core Ins. Tray 1, Middle Level



DESIGN RATIONALE

- Black silicone handle with gray inlay.
- Used to insert lock screws into screws, hooks and connectors.
- Holds up to 8 lock screws. The proximal shaft includes numbered windows with a black reference line to indicate the number of lock screws that can be loaded on the instrument in that position.
- The preferred instrument for set screw delivery when minimal reduction is required.
- It is not compatible with any reduction instruments except the Rocker and does not fit down the segmental derotation links.

Tip

- *When loading lock screws, set the proximal shaft to the desired number of lock screws or higher by verifying the number indicated by the black line in the window.*
- *The set screws must be under compression for the device to deliver lock screws.*
- *After delivery of each lock screw turn the central gray sleeve clockwise to advance the distal shaft until resistance is felt and all lock screws have been compressed together.*
- *During delivery of the lock screw ensure the surgeon does not hold onto the central gray sleeve as this will retract the distal shaft causing the lock screws to lose compression.*

1/4" LOCK SCREW STARTER

Reline Lock Screw Starter, 1/4" Sq Long (10000747)
Reline Core Ins. Tray 1, Middle Level



- Used to insert lock screws into screws, hooks and connectors.
- Enables attachment of the ratcheting handle of choice (straight or T) for lock screw delivery.
- Compatible with all reducers and the segmental derotation links.
- Large diameter sections keep the Lock Screw Starter centered within reducers to ensure alignment during set screw delivery while minimizing the overall weight.

RELINE™ OPEN SYSTEM REVIEW GUIDE

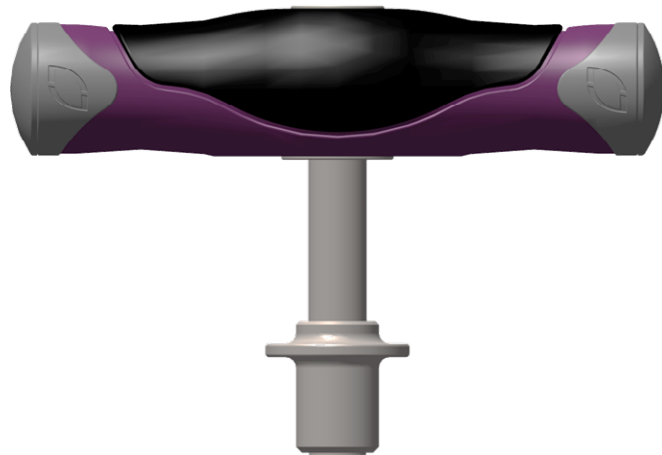
RELINE CORE INS. TRAY 1 (RELCOREIN1) – BOTTOM LEVEL

FINAL TIGHTENING

TORQUE T-HANDLE

NuVasive® T-handle, 90-inlb Torque (10000606)
Reline Core Ins. Tray 1, Bottom Level

- The Torque T-handle accurately ‘breaks away’ at 90 in-lbs of torque. During final tightening an audible and mechanical “click” indicates when the proper 90 in-lbs of torque has been reached.
- Final tightening of all Reline Lock Screws requires 90 in-lbs of torque. If 90 in-lbs of torque is not achieved, the system may not be securely locked down.
- It is NOT recommended to tighten in excess of 90 in-lbs.
- Attach the Torque T-handle securely to the Lock Screw Driver by pulling up on the engagement mechanism under the handle and inserting the Lock Screw Driver shaft. The Torque T-handle is properly engaged when its distal end lines up with the machined line on the Lock Screw Driver.



FINAL DRIVER

Reline Final Lock Screw Driver (10000751)
Reline Core Ins. Tray 1, Bottom Level
Reline ASF Imp. Tray, Bottom Level



- T27 hexalobe drive feature.
- Does not retain the lock screw, only the Lock Screw Starter has retention features.
- Does not fit down the segmental derotation links. The Derotation Tray comes with longer final drivers to use with the segmental derotation links.
- Used with the 90 in-lb Torque T-handle and Counter-torque for final tightening.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 1 (RELCOREIN1) – BOTTOM LEVEL

FINAL TIGHTENING (CONT.)

COMMON COUNTER-TORQUE FEATURES

- Whenever final tightening a lock screw, a Counter-torque must be used.
- The Counter-torque must be fully seated on the implant to counteract the torque being applied and minimize forces on adjacent levels.
- The silicone handle provides a comfortable, ergonomic feel.

COUNTER-TORQUE

Reline Counter-torque, Open Screws (10000688)
Reline Core Ins. Tray 1, Bottom Level

- Designed for use on all open tulip implants except for rod-rod connectors.
- The 180° spacing of the rod slots prevents its use on offset connectors.
- The Counter-torque features an adjustable handle that can change position in 45° increments by depressing the button distal to the silicone handle.
- Surgeons will typically prefer the handle oriented perpendicular or parallel to the rod.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 2 (RELCOREIN2) – TOP LEVEL

ROD CONTOURING

FRENCH BENDER

Reline French Bender (10000726)
Reline Core Ins. Tray 2, Top Level



DESIGN RATIONALE

- Compatible with 5.0, 5.5 and 6.0mm rods in Ti or CoCr.
- Features a center tri-lobe selector as the center fulcrum on the working end of the instrument to apply bends of varying radii.
- Selecting “Small” imparts the most severe bend; if a tighter radii is needed, use the Plate benders.
- Selecting “Medium” imparts a moderate bend.
- Selecting “Large” imparts the slightest, gradual bend.
- To change the tri-lobe setting, pull on the center hex feature and rotate until “S”, “M” or “L” is displayed at the top of the center dial.
- Silicone molded handles provide added comfort and control during rod bending.
- Designed to accommodate single-handed rod bending.

Tip: Rods should never be un-bent, as repeated bending can stress the metal and may reduce fatigue strength.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 2 (RELCOREIN2) – TOP LEVEL

ROD REDUCTION

SILENCER REDUCER

Reline Reducer, Silencer (D10000685)

Reline Core Ins. Tray 2, Top Level

Reline Silencer Reducer Tray (RELSILENCERIN)

DESIGN RATIONALE

- Designed to provide up to 45mm of powerful, controlled rod reduction. Full reduction is verified when the black band on the threaded shaft overlaps the outer shaft. The threaded reduction sleeve is removable for cleaning and is not interchangeable with the Gator reduction sleeve.
- Multipurpose, low-profile reduction instrument used for rod reduction, translation, and derotation maneuvers. Refer to the PLS section for how to lock PLS screws.
- Ideal for use when there is minimal medial/lateral offset between the tulip and rod or when a clear line of sight exists to axially capture the tulip.
- Securely engages all open tulip screws and hooks except for screws with reduction tabs (polyaxial and uniplanar) prior to and after removal. **Do not use the Silencer with Reduction or Reduction Uniplanar Screws.**
- Spring loaded arms open and close providing tactile feedback of engagement when pressed down onto the implant.
- Rod reduction is achieved by attaching the Reduction T-handle (or Reduction Bell with Ratcheting Handle) to the hex end of the shaft and turning in a clockwise motion.
- To release the reducer, ensure that a lock screw is securely in position. Depress the medial/lateral buttons and pull up on the reducer.

Tip

- *Rod reduction should ONLY be performed when the instrument is fully engaged to the tulip.*
- *The distal arms engage the tulip with an undercut feature and may prevent the instrument from disengaging the implant if the reducer is under tension or if the buttons are pressed while trying to pull up on the reducer.*
 - *To ensure smooth and efficient removal of the instrument, turn the Reduction Handle counterclockwise 90° after fully reducing the rod. This will enable the lock screw to deliver the final 1mm of reduction, thereby relieving tension in the instrument and allow the arms to disengage from the implant once depressed.*
- *If multiple reducers are being utilized side-by-side to perform sequential rod reduction over several vertebral levels, the Straight Ratcheting Handle can be attached to the Reduction Bell to minimize the footprint of the handle.*



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 2 (RELCOREIN2) – TOP LEVEL

ROD REDUCTION (CONT.)

MATADOR REDUCER

Reline Reducer, Matador (10000779)
Reline Core Ins. Tray 2, Top Level

DESIGN RATIONALE

- Designed to provide up to 12mm of reduction. Full reduction is verified when a gold line is visible above the proximal end of the outer silver shaft.
- Designed for use as a singled handed, rapid reducer when a moderate amount of rod reduction is desired.
- Compatible with all hooks and screws, including those with reduction tabs.
- The instrument simultaneously captures the screw head and reduces the rod.
 - Prior to compressing the handles to reduce the rod, ensure the distal end of the instrument has bottomed out on the implant.
 - When first compressing the handles a noticeable amount of resistance will be felt. Overcoming the initial resistance indicates that the instrument has locked onto the implant and that reduction has begun. Continuing to squeeze the handles will deliver the remaining amount of reduction.
- Features a rongeur style handle and an optional ratchet feature with an integrated leaf spring to hold reduction.
- Enables passage of a Lock Screw Starter to hold the rod within the screw head.

Tip: To release the ratchet, ensure the handles are being compressed or held together as significant tension is built up within the handles during compression.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE CORE INS. TRAY 2 (RELCOREIN2) – TOP LEVEL

ROD REDUCTION (CONT.)

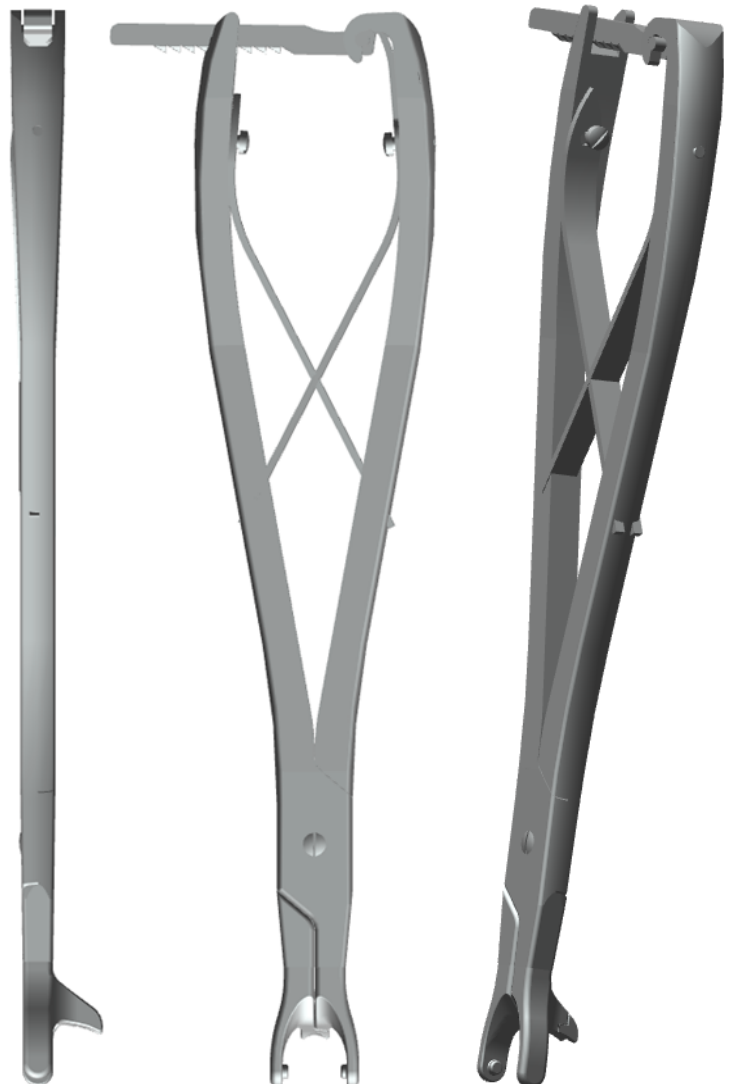
ROCKER

Reline Rocker, Articulating (10000682)
 Reline Core Ins. Tray 2, Top Level

DESIGN RATIONALE

- Designed to provide up to 9mm of reduction.
- A quick and effective tool for seating rods that require a small amount of reduction.
- Designed to engage the tulip in an upright position enabling an unobstructed view of the screw-instrument interface. The distal pins of the Rocker were designed to seat with the divots on the screws and hooks to allow the instrument to rotate relative to the implant.
- The throw of the distal arms has been restricted to limit excursion of the tips to simplify alignment with the tulip.
- After engaging the implant, deflecting the instrument towards the keel (feature on bottom right of image) reduces the rod and allows for insertion of the lock screw.
- The keel features a concave surface for rod engagement to stabilize the instrument during reduction and is designed to fit within an empty rod slot (no lock screw) of an adjacent tulip.
- The ratcheting arm can be disengaged by rotating it upwards.

Tip: To simplify attachment to an implant, engage one side of the distal pin into the divot of a tulip first, then compress the handles to capture the opposite side of the implant.



RELINE™ OPEN SYSTEM REVIEW GUIDE

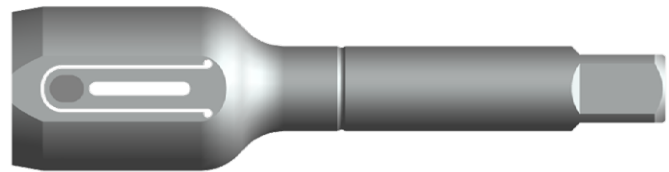
RELINE CORE INS. TRAY 2 (RELCOREIN2) – TOP LEVEL

ROD REDUCTION (CONT.)

REDUCTION BELL

Reline Reduction Bell, Short (10000493)
 Reline Core Ins. Tray 2, Top Level
 Reline Silencer Reducer Tray, Base Level
 Reline Gator Reducer Tray, Base Level

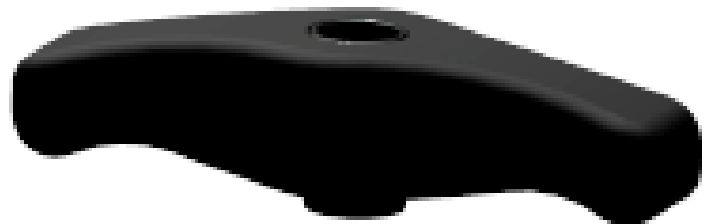
- Designed as a minimal footprint instrument to enable use of a quick connect handle to reduce rods.
- Ideal for use with a straight handle when sequentially reducing rods over multiple levels.
- Designed with a wire-cut spring engagement feature to provide passive locking onto the hex feature of reducers (Silencer and Gator).
- May also be used with the 90 in-lb Torque T-handle to lock the PLS with the Silencer or Gator Reducer.



REDUCTION TOWER T-HANDLE

NuVasive® T-handle, Reducer (10000769)
 Reline Core Ins. Tray 2, Top Level

- Use the Reduction T-handle to rotate the threaded reduction tube of the Silencer or Gator Reducer. The cannulation allows passage of a lock screw after reduction using the Lock Screw Starter.
- Ideal for reduction when only a single reducer is being used.
- Designed with a wire-cut spring engagement feature to provide passive locking onto the hex feature of reducers (Silencer and Gator).



RELINE™ OPEN SYSTEM REVIEW GUIDE

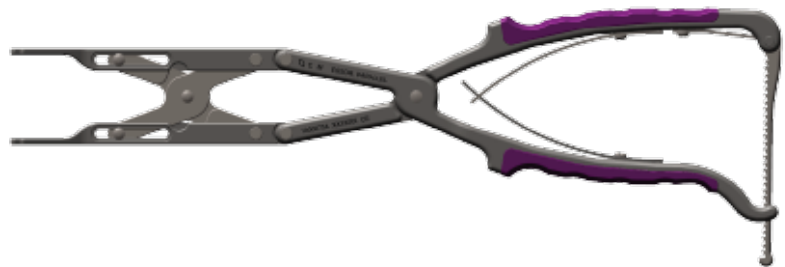
RELINE CORE INS. TRAY 2 (RELCOREIN2) – BOTTOM LEVEL

COMPRESSION AND DISTRACTION

COMPRESSOR, PARALLEL

Reline Compressor, Parallel (10000754)
 Reline Core Ins. Tray 2, Bottom Level

- Provides a maximum throw up to 60mm and compression down to 15mm allowing tulips to touch.
- Powerful, parallel action scissor-jack instrument applies compression between implants.
- Will enable tulips to touch upon full compression.
- Ergonomic silicone overmolded handles feature a leaf spring and ratchet mechanism to simplify instrument engagement and removal. The ratchet arm may be folded down to minimize interference with adjacent instruments.
- Distal rod slots fit securely over the rod for secure engagement during compression.



COMPRESSOR, HINGED

Reline Compressor, Hinged (10000752)
 Reline Core Ins. Tray 2, Bottom Level

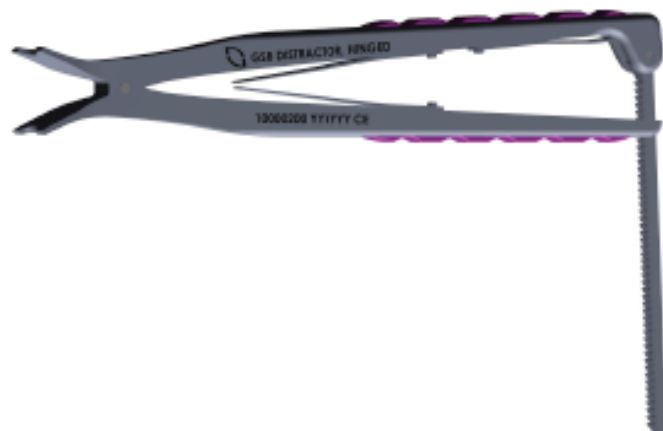
- Provides a maximum throw up to 60mm and compression down to 15mm allowing tulips to touch.
- Single-hinge design features rigid handles that provide minimal flex during compression for optimal tactile feel.
- Curved tips wrap around the tulip and angle the handle out of the operative field to ease lock screw insertion.
- Integrated ratcheting arm holds compression when tightening the lock screw. The ratchet arm may be folded down to minimize interference with adjacent instruments.



DISTRACTOR, HINGED

Reline Distractor, Hinged (10000756)
 Reline Core Ins. Tray 2, Bottom Level

- Single-hinge design minimizes run-on-the-rod to fit in between screw heads that are spaced within 5mm of each other and provides distraction up to 39mm.
- Single-hinge design features rigid handles that provide minimal flex during distraction for optimal tactile feel.
- The tip width has been optimized to minimize the run-on-the-rod when fully closed.
- Integrated ratcheting arm holds distraction when tightening the lock screw. The ratchet arm may be folded down to minimize interference with adjacent instruments.



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RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE 5.5mm OR 6.0mm CROSS CONNECTOR IMP. TRAY (REL55CCIMP OR REL60CCIMP)

The same instruments and rod specific cross connector implants are included in each set.

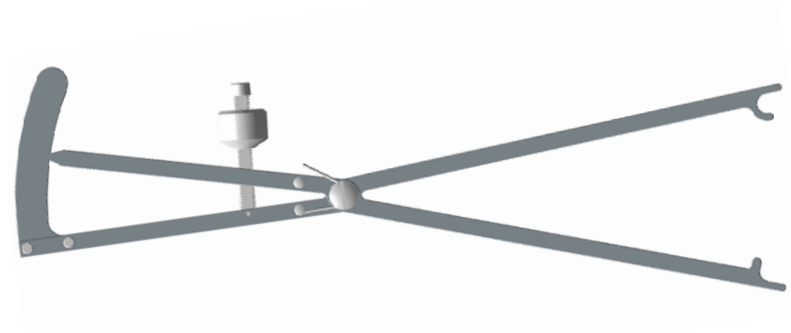
CROSS CONNECTOR MEASUREMENT TOOL

Reline Measurement Tool, Cross Connector (10000771)

Reline 5.5mm C-C Imp. Tray, Bottom Level

Reline 6.0mm C-C Imp. Tray, Bottom Level

- Used to measure the distance between bilateral rods for sizing of the cross connector.
- For accurate measurement, the J-shaped tip engages and pivots on one rod while the L-shaped tip is pressed against the other rod. Always ensure the tips of the Cross Connector Measurement Tool seat flush against the rod.
- The spring-loaded L-shaped arm takes the reading from the lateral aspect of the rod so that the caliper tips are never being pointed toward the dura.
- If desired, the thumb screw will secure the Cross Connector Measurement Tool in position while reading the length.
- Readings are taken off the arc of the instrument.



LOW-PROFILE ADJUSTABLE CENTER GUIDE

Reline Center Guide, Low-Profile Adj (10000711)

Reline 5.5mm C-C Imp. Tray, Bottom Level

Reline 6.0mm C-C Imp. Tray, Bottom Level

- Designed to seat on the central arm of the Low-Profile Adjustable Cross Connector to serve as a guide for the final driver and function as a Counter-torque.
- When seated flush on the cross connector, the instrument guides the Final Lock Screw Driver to the lock screw and protects against skiving off over the central column.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE 5.5mm OR 6.0mm CROSS CONNECTOR IMP. TRAY (REL55CCIMP OR REL60CCIMP)

FIXED CONNECTOR BENDERS

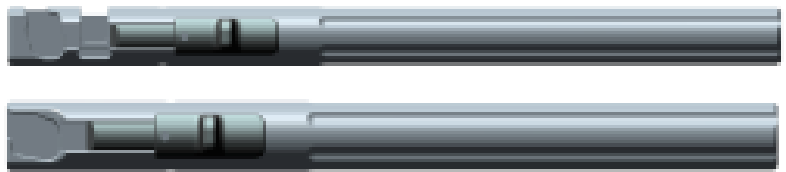
Reline Bender 1, Fixed Cross Connector (10000712)

Reline Bender 2, Fixed Cross Connector (10000713)

Reline 5.5mm C-C Imp. Tray, Bottom Level

Reline 6.0mm C-C Imp. Tray, Bottom Level

- Designed to enable bending of the Fixed Cross Connectors to make fine adjustments to accommodate non-parallel rods or to modify the length by changing the contour.
- **Do not use with Adjustable Cross Connectors. They are not designed to be bent.**
- Profiled recesses enable the Fixed Cross Connectors to fit securely in position. An integrated sliding cover prevents the Fixed Cross Connectors from slipping of the benders.
- The left bender features 2 slots:
 - The lower slot allows the Fixed Cross Connector to drop in as if seating over the rod, and allows for bends to accommodate non-parallel rods.
 - The upper slot allows the Fixed Cross Connector to drop in on its side and allows for adjusting the contour of the implant.
- The right bender only accepts the side profile of the connector to drop in.



CROSS CONNECTOR HOLDER

Reline Holder, Cross Connector (10000708)

Reline 5.5mm C-C Imp.Tray, Bottom Level

Reline 6.0mm C-C Imp. Tray, Bottom Level

- A forceps-style instrument designed to grip the both the Fixed and Low-Profile Adjustable Cross Connectors for controlled insertion.
- For the most efficient insertion method, attach a holder to each end of the implant and fit the end of the cross connector on one rod first followed by the other.
- When closed onto the cross connector, a cutout in the distal arms serves as a guide for the cross connector driver. The guide was designed to simplify alignment of the driver with the locking feature and prevent the chance of slipping off the implant.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE 5.5mm OR 6.0mm CROSS CONNECTOR IMP. TRAY (REL55CCIMP OR REL60CCIMP)

CROSS CONNECTOR DRIVER

Reline Driver, Cross Connector Cam (10000709)
 Reline 5.5mm C-C Imp. Tray, Bottom Level
 Reline 6.0mm Imp. C-C Tray, Bottom Level



- Used for tightening both the Fixed and Low-Profile Adjustable Cross Connectors.
- The T-20 Hexalobe provides a robust drive mechanism to minimize stripping of the driver.
- Fits down the guide barrel of the Cross Connector Holder and the Low-Profile Center Guide.
- Use with the Cross Connector 40 in-lb Torque T-handle to ensure proper locking of the cams to the rods and the center locking arm of the Low-Profile Adjustable Cross Connector.

CROSS CONNECTOR TORQUE T-HANDLE

NuVasive® X-Link T-handle, 40 in-lb (10000770)
 Reline 5.5mm C-C Imp. Tray, Bottom Level
 Reline 6.0mm C-C Imp. Tray, Bottom Level

- Used with the Cross Connector Driver for final tightening the Fixed and Low-Profile Adjustable Cross Connector.
- Provides a 40 in-lb breakaway to confirm final tightening of the cams and center locking arm of the adjustable connector.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE 5.5mm OR 6.0mm LONG ROD IMP. TRAY (REL55LGRODIMP OR REL60LGRODIMP)

The top level of each rod diameter specific tray (5.5mm or 6.0mm) contains 500mm Ti and CoCr Rods and extra 5.5mm or 6.0mm lock screws.

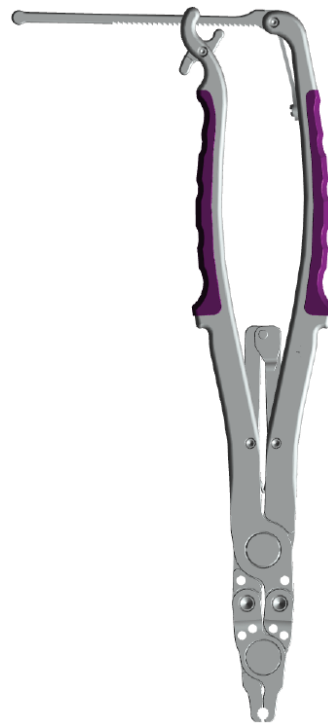
ROD GRIPPER, 5.5mm OR 6.0mm ROD

Reline Gripper, 5.5mm Rod (10000703)
 Reline 5.5mm Rod Gripper Ins. Tray, Bottom Level
 Reline Gripper, 6.0mm Rod (10000704)
 Reline 5.5mm Rod Gripper Ins. Tray, Bottom Level

DESIGN RATIONALE

- The Rod Gripper provides rigid engagement to the rod and is designed specifically to the rod diameter being used. Both 5.5mm and 6.0mm versions are available.
- Used for rod seating and rod rotation maneuvers or whenever significant force is required to manipulate the orientation of the rod.
- Features a trigger mechanism for true single handle quick release from the rod.
- Ergonomically designed silicone molded handles provide a comfortable grip.

Tip: Rod rotation is typically performed with the use of two Rod Grippers. Initially, both Rod Grippers are tightly clamped onto the rod and rotated into the convexity of the curve. To achieve additional rod rotation, each Rod Gripper is sequentially loosened and rotated back to a starting position to achieve the desired amount of rod rotation. Typically the rod is rotated through 90°.



ROD PUSHER

Reline Rod Pusher, Open (10000705)
 Reline 5.5mm Long Rod Imp. Tray, Bottom



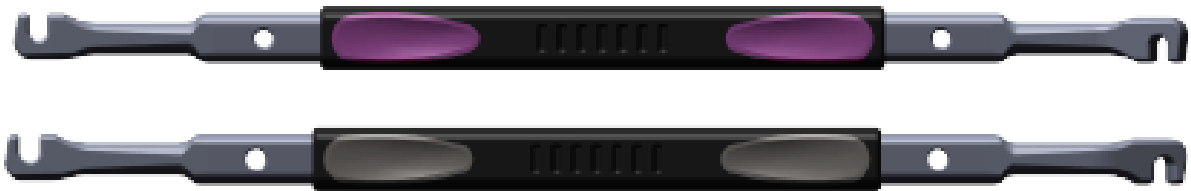
- Used to push rods into implants by delivering a downward force.
- Designed with a tapered rod engagement feature to accommodate 5.0, 5.5 or 6.0mm rods.
- The ergonomically contoured silicone handle features a strike plate.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE 5.5mm OR 6.0mm LONG ROD IMP. TRAY (REL55LGRODIMP OR REL60LGRODIMP)

IN SITU SAGITTAL BENDER

Reline Sag Bender, 5.5mm Left (10000731), 5.5mm Right (10000732)
 Reline 5.5mm Long Rod Imp. Tray, Bottom Level
 Reline Sag Bender, 6.0mm Left (10000735), 6.0mm Right (10000736)
 Reline 6.0mm Long Rod Imp. Tray, Bottom Level



- Used *in situ* to bend rods in the sagittal plane.
- The rod slots are designed specifically to the rod diameter to ensure secure engagement to the rod and minimize notching. Both 5.5mm (purple silicone inlay) and 6.0mm (gray silicone inlay) versions are available.
- Features both straight and angled tips. The angled ends are most commonly used as they cause the handles to diverge from each other, enabling significant leverage to bend the rod.
- The depth of the rod slots ensures that the center of the rod aligns with the central axis of the benders to increase stability during bending.
- Silicone molded handles provide added comfort and control during rod bending.

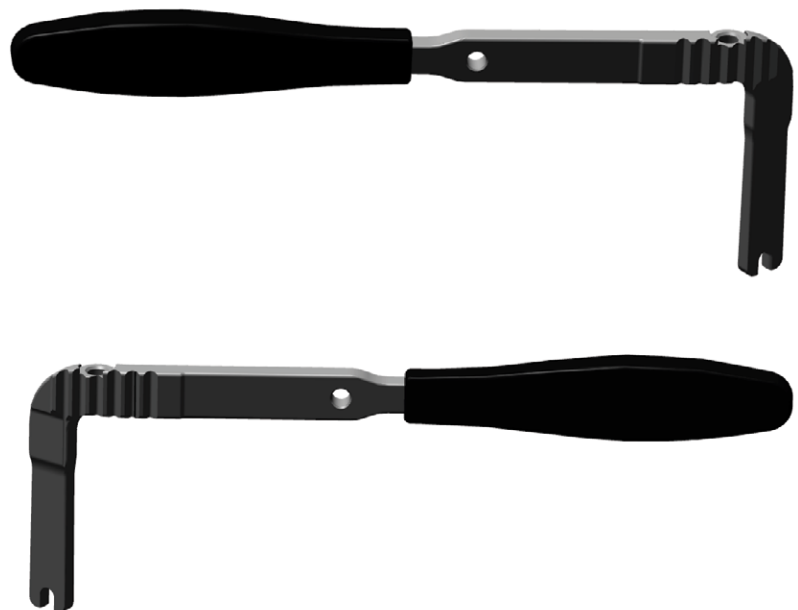
IN-SITU CORONAL BENDER

Reline Coronal Bender, 5.5mm Left (10000733),
 5.5mm Right (10000734)
 Reline 5.5mm Long Rod Imp. Tray, Bottom Level
 Reline Coronal Bender, 6.0mm Left (10000737),
 6.0mm Right (10000738)
 Reline 6.0mm Long Rod Imp. Tray, Bottom Level

DESIGN RATIONALE

- Used for making fine adjustments to the rod in the coronal plane.
- The rod slots are designed specifically to the rod diameter to ensure secure engagement to the rod and minimize notching. Both 5.5mm (purple silicone inlay) and 6.0mm (gray silicone inlay) versions are available.
- The ridges at the L-bend of the right and left benders are meant to interdigitate to provide a secure fulcrum during bending.
- Silicone molded handles provide added comfort and control during rod bending.

Tip: Features slots near the L-bend that accept a Coronal Bender link to extend the fulcrum for use in multi-level bends.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE 5.5mm OR 6.0mm LONG ROD IMP. TRAY (REL55LGRODIMP OR REL60LGRODIMP)

CORONAL BENDER LINK

Reline Coronal Bender Link (10000739)

Reline 5.5mm Long Rod Imp. Tray, Bottom Level

Reline 6.0mm Long Rod Imp. Tray, Bottom Level

- Used to extend the fulcrum of the Coronal Benders to enable bends over multiple levels.
- Each pin features a clip ring retention mechanism to provide snap-in passive locking of the links within the slots of the benders.
- Depress the button on the non-fixed pin and slide along the ratchet to adjust the fulcrum length of the benders.

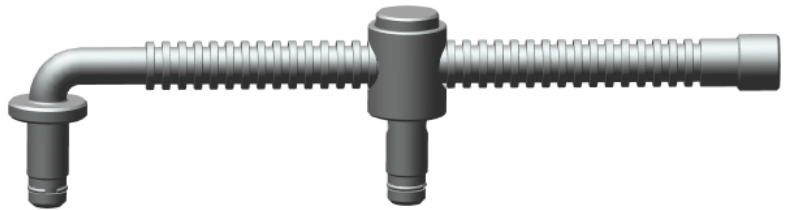


PLATE BENDERS

Reline Plate Bender (10000730)

Reline 5.5mm Long Rod Imp. Tray, Bottom Level

Reline 6.0mm Long Rod Imp. Tray, Bottom Level



DESIGN RATIONALE

- Used for generating smooth, large radius curves or for extremely tight radii bends that cannot be achieved with the French Bender.
- Accommodates 5.0, 5.5, 6.0 and 6.35mm rods. One end has 5.0mm and 5.5mm rod slots and the opposite end has 6.0mm and 6.35mm holes. The most common rod sizes (5.5mm and 6.0mm) are placed closest to the end of the instrument to enable tight radii bends.

Tip

- *Rods have a tendency to slip and rotate within plate style benders due to the forces put onto the rod and it is recommended to stabilize the benders and rods during bending.*
- *For additional stability during bending, place the end of one bender in the side of the Rod Cutter. Refer to the Rod Cutter for an image of the Plate Bender slots.*
- *Rod grippers may also be used by the scrub tech to stabilize the rod during bending.*

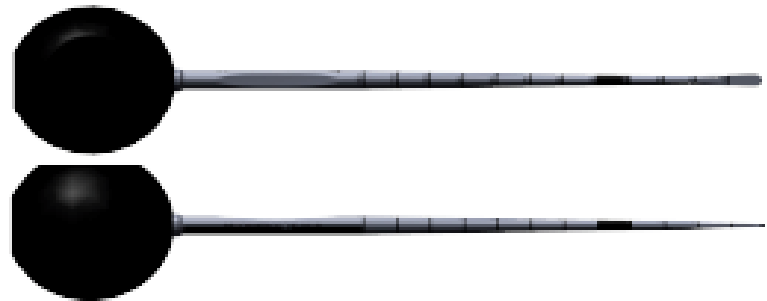
RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE ILIAC IMP. TRAY (RELILIACIMP)

ILIAC GEARSHIFT

Reline Gearshift Probe, Iliac (10000615)
Reline Iliac Tray, Bottom Level

- The blunt, rounded tip is designed for safe advancement between the iliac tables to prevent entering the sciatic notch.
- Black silicone handle for visual differentiation.
 - Hole diameter by length along the gearshift tip.



LENGTH (mm)	10	20	35	40	50	60	70	80	90	100	110	120
DIAMETER (mm)	3.3	3.8	3.2	3.5	3.9	4.6	5.4	6.1	6.8	7.6	8.3	9.0

TAP

Reline Tap, 8.5mm Solid (10000633)
Reline Tap, 9.5mm Solid (10000635)
Reline Iliac Imp. Tray, Bottom Level



- Two aggressive cutting flutes effectively cut threads into cortical and cancellous bone in the pedicle and vertebral body prior to screw insertion.
- The threads extend 40mm from the tip and feature a dark band between 40-50mm to aid in depth assessment.
- Taps are sized to match ("line-to-line") the diameter of the pedicle screw threads.
- The proximal end features two colored bands that match the color of the corresponding shank diameter.

4.0mm	4.5mm	5.5mm	6.5mm	7.5mm	8.5mm	9.5mm
Bronze	Green	Light Blue	Magenta	Dark Blue	Purple	Light Green

- The NVM5® Dynamic Screw Test ring is located near the handle and rotates independently from the shaft of the tap. This is the attachment point for the NVM5 DST clip which allows the clip to rotate freely, preventing the wire from wrapping around the instrument.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE ILIAC IMP. TRAY (RELILIACIMP)

CLOSED ILIAC SCREWDRIVER

Reline Screwdriver, Closed Iliac Solid (D10000813)
Reline Iliac Tray, Bottom Level



- The Closed Iliac Screwdriver is used to insert the closed head iliac screw and has a black knurled knob to differentiate it from the standard polyaxial screwdriver.
- The proximal shaft is lasermarked "Closed Iliac Driver".
- Low-profile design minimizes soft tissue interference.
- Distal shaft threads into the screw tulip to ensure secure engagement of the distal drive feature (C-Star 25). The screwdriver bottoms out on the top of the screw shank to ensure the shank remains rigidly aligned with minimal wobble. The C-Star drive has a larger minor diameter as compared to a T25 driver for increased shear resistance. It cannot be used to drive standard T25 shanks.
- An outer free spinning sleeve rotates independently from the driver to prevent catching soft tissue and premature disengagement from the screw during insertion. The sleeve may be removed for cleaning by depressing the silver button on the proximal end of the sleeve, just below the knurled knob and sliding distal.
- The main shaft may be retracted to ease loading into screws by depressing the gold button and retracting the main shaft proximally.
- The NVM5® Dynamic Screw Test ring is located near the handle and rotates independently from the shaft of the tap. This is the attachment point for the NVM5 DST clip and allows the clip to rotate freely, preventing the wire from wrapping around the instrument.

EXPANDABLE LOCK SCREWDRIVER

Reline Lock Screw Starter, Expandable (D10000745)
Reline Iliac Screw Imp. Tray, Top Level



DESIGN RATIONALE

- Gray silicone handle with purple inlay and knurled gold proximal knob.
- Used to insert lock screws into screws, hooks and rod-rod connectors.
- It is not compatible with any reduction instruments except the Rocker and does not fit down the segmental derotation links.
- Ideal for insertion of lock screws during iliac fixation or when inserting rod-rod connectors.

Tip

- *Turning the gold knob at the proximal end clockwise expands the distal tip to ensure rigid engagement to the lock screw. To release the lock screw, turn the gold knob counterclockwise. Ensure this piece is present during set inspection prior to starting the case and after going through the wash.*
- *Do not over tighten or "white-knuckle" with this instrument. The distal drive feature is slotted to allow expansion and may shear or twist if an excess torque is applied.*

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE ILIAC IMP. TRAY (RELILIACIMP)

CLOSED ILIAC COUNTER-TORQUE

Reline Counter-torque, Closed Iliac (10000689)
Reline Iliac Screw Imp. Tray, Bottom Level

- Used for final tightening closed iliac screws.
- Minimal distal footprint is ideal for capturing closed iliac screws without interfering with the iliac anatomy.



OPEN OFFSET CONNECTOR COUNTER-TORQUE

Reline Counter-torque, Open Offset Conn (10000691)
Reline Iliac Screw Imp. Tray, Bottom Level

- Used for final tightening the Open Offset Connector.
- 4 rod slots are positioned at 90° increments to accommodate rods oriented perpendicular to each other in the offset connector.



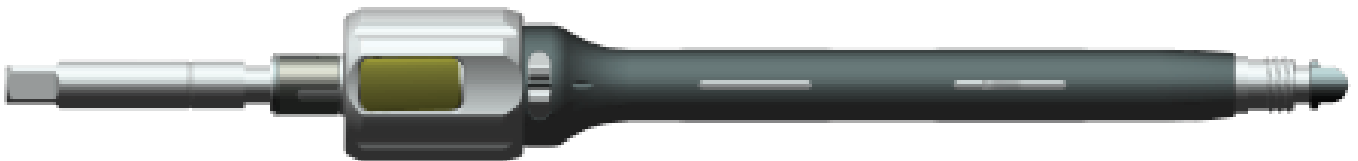
RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE MONOAXIAL IMP. TRAY (RELMONOIMP)

FIXED SCREW DRIVER, 5.5mm ROD

Reline Screwdriver, Fixed Solid (D10000818)

Reline Monoaxial Imp. Tray, Base Level



- The Fixed Screwdriver has a distal drive feature shaped to match the contour of the rod slot. This feature provides torsional rigidity while inserting the fixed screw.
- The proximal shaft is lasermarked "Fixed Driver."
- Low-profile design minimizes soft tissue interference.
- Distal shaft threads into the screw tulip to ensure secure engagement of the distal drive feature (C-Star 25). The screwdriver bottoms out on the top of the screw shank to ensure the shank remains rigidly aligned with minimal wobble. The C-Star drive has a larger minor diameter as compared to a T25 driver for increased shear resistance. It cannot be used to drive standard T25 shanks.
- An outer free spinning sleeve rotates independently from the driver to prevent catching soft tissue and premature disengagement from the screw during insertion. The sleeve may be removed for cleaning by depressing the silver button on the proximal end of the sleeve, just below the knurled knob and sliding distal.
- The main shaft may be retracted to ease loading into screws by depressing the gold button and retracting the main shaft proximally.
- The NVM5® Dynamic Screw Test ring is located near the handle and rotates independently from the shaft of the tap. This is the attachment point for the NVM5 DST clip which allows the clip to rotate freely, preventing the wire from wrapping around the instrument.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE GATOR REDUCER INS. TRAY (RELGATORIN)

GATOR REDUCER

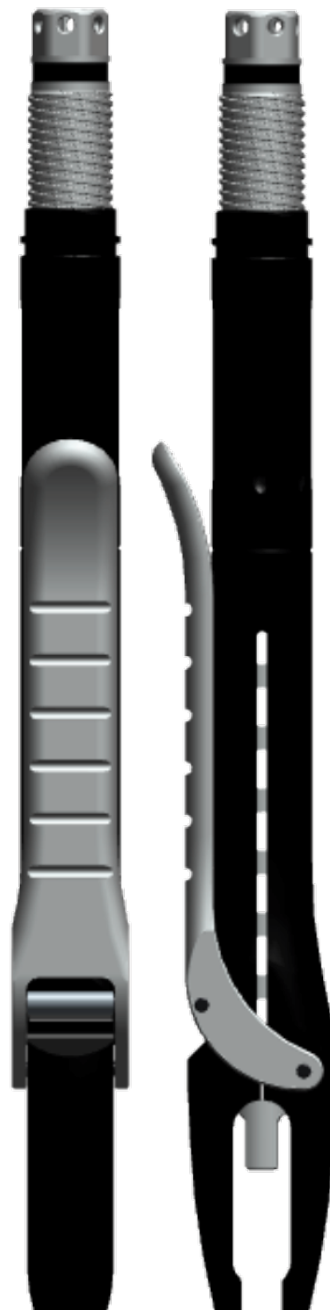
Reline Reducer, Gator (D10000684)
Reline Gator Reducer Tray, Base Level

DESIGN RATIONALE

- Designed to provide up to 35mm of rod reduction. Full reduction is verified when the black band on the threaded shaft overlaps the outer shaft. The threaded reduction sleeve is removable for cleaning and is not interchangeable with the Silencer reduction sleeve.
- Ideal for use when the rod is slightly medial or lateral to the tulip and some force is required to capture the rod and tulip.
- Multi-purpose, low-profile reduction instrument used for rod reduction, translation, and derotation maneuvers. Refer to the PLS section for how to lock PLS.
- Securely engages all open tulip screws and hooks, except for screws with reduction tabs (polyaxial and uniplanar) prior to and after tab removal. **Do not use the Gator with Reduction or Reduction Uniplanar Screws.**
- When properly aligned on the tulip, the instrument should bottom out on the top of the implant and allow the handle to close with minimal force. **Do not force the handle closed.** If the arm does not close easily reposition the reducer over the implant and try closing the arm again.
- Rod reduction is achieved by attaching the Reduction T-handle (or Reduction Bell with Ratcheting Handle) to the hex end of the shaft and turning in a clockwise motion.
- To release the reducer, ensure that a lock screw is securely in position and open the silver arm and pull up on the instrument.

Tip

- *Rod reduction should ONLY be performed when the instrument is fully engaged to the tulip.*
- *If multiple reducers are being utilized side-by-side to perform sequential rod reduction over several vertebral levels, the Straight Quick Connect Handle can be attached to the Reduction Bell to minimize the footprint of the handle.*
- *To ensure smooth removal of the instrument, turn the Reduction Handle counterclockwise 90° after fully reducing the rod to enable the lock screw to deliver the final 1mm of reduction, thereby relieving tension in the instrument.*

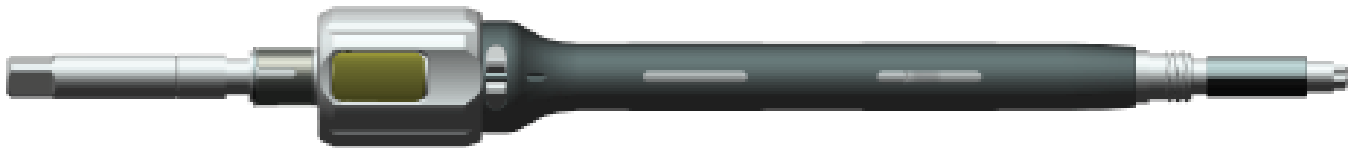


RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE REDUCTION SCREW IMP. TRAY (RELREDIMP)

REDUCTION SCREWDRIVER

Reline Screwdriver, Solid Reduction (D10000832)
Reline Uni-Reduction Screw Imp. Tray, Base Level



- The Reduction Screwdriver is used for inserting the Reduction and Uniplanar Reduction screws.
- The distal shaft is dark gray and has extended lateral features to resist rotation of the tulip during removal of the driver.
- Incorporates all the common features of the other drivers. See the general screwdriver section.

REDUCTION SCREW COUNTER-TORQUE

Reline Counter-torque, Reduction Screw (10000687)
Reline Uni-Reduction Screw Imp. Tray, Base Level

- Used to stabilize the extended tabs on reduction screws while reducing the rod with the lock screw.
 - The rod slots at the distal tip should be kept flush on the rod while reducing with the lock screw.
- The Counter-torque MUST be used when breaking off the extended tabs using the Reduction Tab Break-off Tool.
- When breaking off the extended tabs of the reduction screw, the top of the distal tip of the Reduction Counter-torque must sit below the recessed feature of the extended tabs of the reduction screw.
- The shaft of the instrument was designed biased to the cephalad side to prevent inference with lateral anatomy and provide unobstructed access for the Break-off Tool.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE REDUCTION SCREW IMP. TRAY (RELREDIMP)

REDUCTION SCREW CAP

Reline Reduction Screw Cap, Open (10000299)
Reline Uni-Reduction Screw Imp. Tray, Base Level

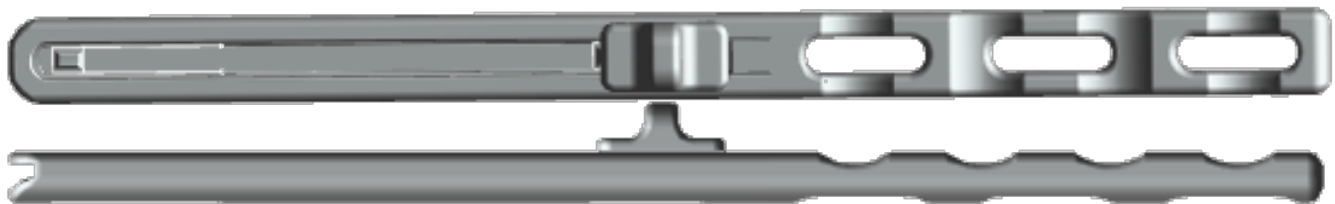
- Designed to stabilize and constrain the reduction screw tabs during lock screw insertion to minimize cross threading and prevent splay of the tabs.
- The simple design provides easy insertion over the reduction tabs and medial/lateral ridges provide a non-slip surface for removal.
- The caps should sit flush on the top of the tabs prior to lock screw insertion.



***Tip:** The caps should easily slide down the tabs when properly aligned. Do not force the caps onto the tulips as this can cause the tabs to bend inwards preventing delivery of the set screw and making removal difficult.*

**REDUCTION SCREW
BREAK-OFF TOOL**

Reline Break-off Tool, Reduction Tab (10000686)
Reline Uni-Reduction Screw Imp. Tray, Base Level



- Used to remove the extended tabs of the reduction screws once the rod has been fully reduced.
- Always use in conjunction with the Reduction Counter-torque for added stability.
- The opening at the distal tip is contoured to match the radius of the tulip and is designed to slide snugly over the extended tab.
- To engage the tabs in the correct orientation, ensure the thumb piece is facing inwards towards the rod slot and is in the fully retracted position.
- The Break-off Tool will retain up to four extended tabs at a single time.
- The thumb piece on the side of the shaft slides distally to expel the extended tabs.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE DEROTATION INS. TRAY (RELVBDIN)

COUPLED SEGMENTAL DEROTATOR

Reline Derotator, Coupled Segmental (10000740)
Reline Derotation Ins. Tray, Base Level

- Designed to securely link adjacent derotation towers across a vertebral body to spread the forces during segmental derotation techniques.
- Locks with a male T27 or female ¼" hex driver.
- Compatible with the Silencer and Gator Reducer, Derotation Tower and MAS® Guides.
- Both connectors have polyaxial motion to accommodate varied orientations of the derotation towers. Only one side translates to allow adjustment of the length to minimize the number of moving pieces to simplify attachment.
- Once attached to the derotation instrument of choice, each connector can be locked into a fixed orientation using the Derotation Driver.
- In the unlocked state, the segmental links can be removed from the derotation instrument by depressing the gold buttons on each connector.
- The windows within each tube enable the silicone of the en bloc clamps to mold around them to create a secure frame.



DEROTATION DRIVER

Reline Derotation Driver (10000743)
Reline Derotation Ins. Tray, Base Level

- Used to lock the coupled segmental derotation links.
- The female ¼" hex driver simplifies alignment over the locking mechanism.



DEROTATION CLAMP

Reline Derotation Clamp (10000772)
Reline Derotation Ins. Tray, Base Level

- Designed to link derotation towers or segmental links over multiple levels for en bloc derotation techniques.
- The silicone liner is designed to mold around the derotation instruments to create a rigid construct.
- The black lever should be in the unlocked position prior to engagement of the clamp. Once fully compressed, the black levers can be rotated to the locked position to provide additional compression onto the derotation instruments. The gold buttons release the ratchet mechanism and should be used with the black lever in the unlocked position.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE DEROTATION INS. TRAY (RELVBDIN)

DEROTATION EXTENDER

Reline Guide Extenders (10000543)
Reline Derotation Ins. Tray, Base Level

- Designed to attach to a reducer (Silencer or Gator), Derotation Tower or guide to provide engagement for the en bloc clamp. Use in combination with the segmental derotation links as an additional extension level for en bloc techniques.
- The windows within each tube enable the silicone of the en bloc clamps to mold around them to create a secure frame.
- Once attached onto a reducer (Silencer or Gator), derotation tower or guide, the extenders can be removed by depressing the gold buttons on each extender.



LONG FINAL DRIVER

Reline Final Lock Screw Driver, Long (10000750)
Reline Derotation Ins. Tray, Base Level



- The Long Final Lock Screw Driver is designed to enable access to tighten lock screws through the segmental derotation links or derotation extenders to hold correction.
- Attaches to ratcheting handles or the 90 in-lb Torque T-handle through a 1/4" square feature.
- It does not include a lock screw retention mechanism and therefore is not designed to deliver lock screws.

DEROTATION TOWER

Reline Derotation Tower (10000741)
Reline Derotation Ins. Tray, Bottom Level



- The Derotation Tower engages any screw or hook and is used to derotate vertebral bodies in the transverse plane.
- The rigid distal end of the instrument attaches to and releases from the implant in the same way as the Silencer Reducer.
- To engage an implant, axially align the instrument with the implant and press down. The medial/lateral spring loaded arms will open and close onto the implant providing tactile verification of engagement.
- The segmental links can be attached to the proximal end of the instrument. En bloc clamps can be attached to the ridges on reducers or on the segmental links.

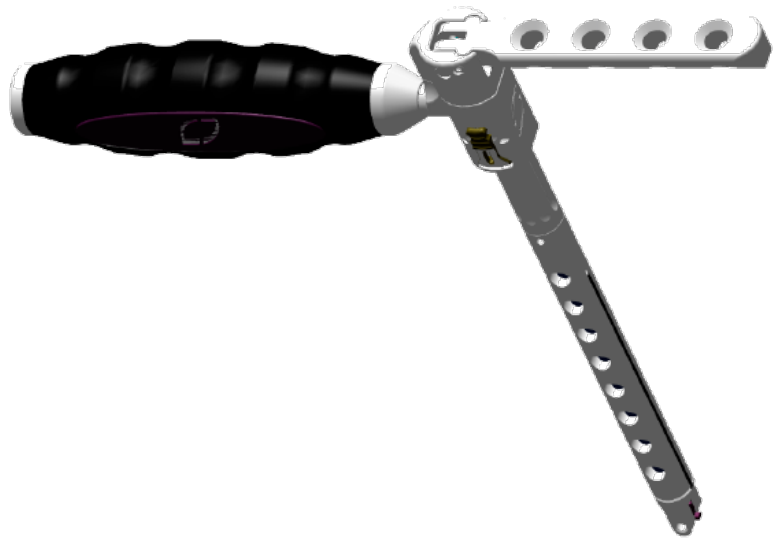
RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE PLS IMP. TRAY (RELPLSIMP)

PLS UNLOCKING TOOL

Reline PLS Unlock Tool (10000775)
Reline PLS Screw Imp. Tray, Base Level

- Used to unlock the provisional locking screw with the use of a Silencer Reducer and with the rod removed.
- Unthread the reduction tube from the Silencer reducer and attach the Silencer to the locked PLS.
- Rotate the metal handle cam of the Unlock Tool so it is facing directly upwards and in-line with the distal shaft. Insert will be visible at the base of the cam handle.
- Drop the Unlock Tool into the Silencer and ensure the Unlock Tool clicks into the proximal engagement features.
- Rotate the cam 90° downwards until the “insert” marking is no longer visible.
- Rotate the cam handle clockwise towards the silicone handle until the polyaxial motion is restored to the PLS.
- To remove, rotate the cam upright and depress the gold buttons on the Unlock Tool to remove from the Silencer. Alternatively, the Silencer and Unlock Tool can be removed from the screw by depressing the medial/lateral buttons on the Silencer.



GUIDE COUNTER-TORQUE

Reline Counter-torque, Guide (10000552)
Reline PLS Screw Imp. Tray, Base Level

- Must be used on the Silencer or Gator Reducer whenever locking the provisional locking screw.
- The distal ring slides onto the cranial/caudal slots at the proximal end of the reducer.

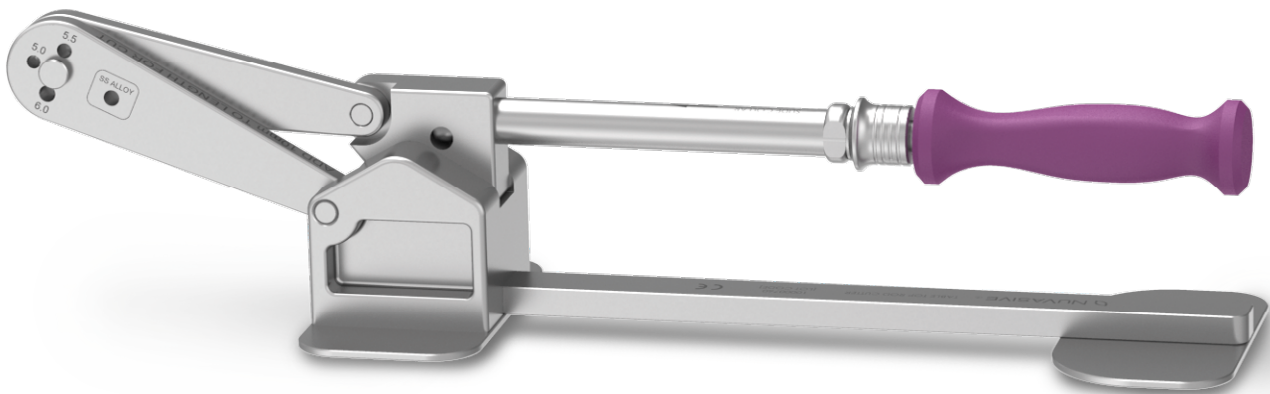


RELINE™ OPEN SYSTEM REVIEW GUIDE

ROD CUTTER INS. TRAY (RODCUTIN)

TABLETOP ROD CUTTER

Reline Rod Cutter (10000768)
Rod Cutter Ins. Tray, Base Level



- Features a retractable handle that can be expanded for additional leverage by depressing the collar and pulling back on the handle.
- Cuts 5.0, 5.5, and 6.0mm rods in Ti and CoCr as well as a dedicated slot for stainless steel rods.

Note: Only cut stainless steel rods using the slot designated for stainless steel.

- Rods are cut with a shearing action to produce smooth ends free of burrs or sharp edges.
 - After marking the length of rod to be cut, add a second line 10mm shorter to account for the width of the shearing surfaces to ensure the cut is performed at the desired location.
- The Tabletop Rod Cutter should always be used on a sturdy table, with both feet sitting flush on a flat surface.
 - It is never recommended to be used on the mayo stand.
- It is recommended to hold both ends of the rod while cutting to ensure they do not fall onto the floor.

RELINE™ OPEN SYSTEM REVIEW GUIDE

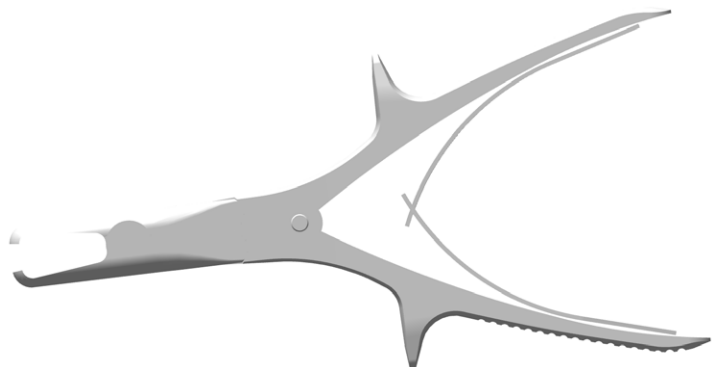
RELINE ADJACENT SEGMENT FIXATION IMP. TRAY (RELASFIMP)

The top level contains all the implants, lock screws and offset rods.

ASF RONGEUR

ASF Rongeur (7459608)
Reline ASF Imp. Tray, Middle Level

- Designed with a distal window to enable removal of bone from under and around a rod.
- Recommended for use after initially clearing bone around a rod with the chisel.



ROD-ROD CONNECTOR COUNTER-TORQUE

Reline Counter-torque, Rod-Rod Conn (10000690)
Reline ASF Imp. Tray, Bottom Level

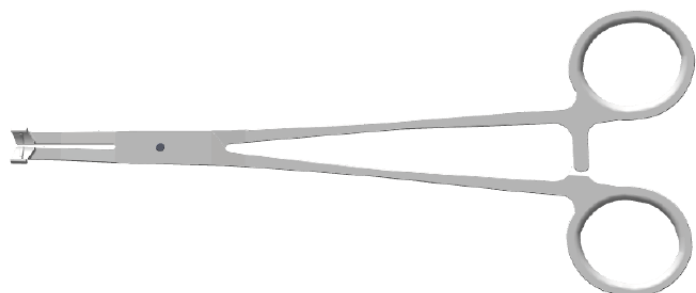
- Designed for final tightening open-open, open-hook and rotating rod-rod connectors.



UNILATERAL INSERTER

Reline Hook Inserter, Unilateral (10000693)
Reline ASF Imp. Tray, Bottom Level

- Designed as a unilateral hook inserter with applications for iliac offset connectors and rod-rod connectors.
- Engages the lateral aspect of open-open, open-hook and rotating rod-rod connectors for controlled insertion and unobstructed access for lock screw delivery.



RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE ADJACENT SEGMENT FIXATION IMP. TRAY (RELASFIMP)

FINAL LOCK SCREW DRIVER

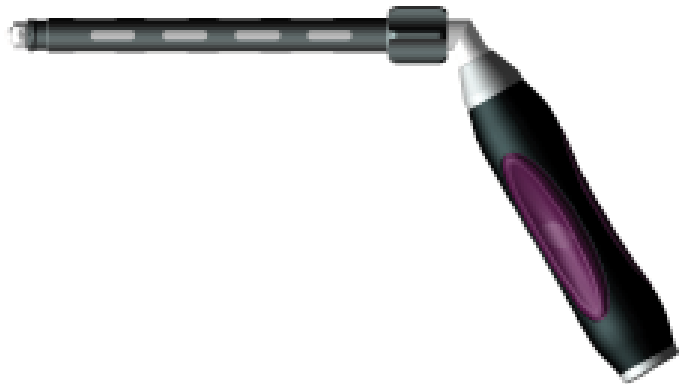
Reline Final Lock Screw Driver (10000751)
Reline ASF Imp. Tray, Bottom Level



- T27 hexalobe drive feature.
- Does not retain the lock screw, only Lock Screw Starters have retention features.
- Does not fit down the segmental derotation links. The Derotation Tray comes with longer final drivers to use with the segmental derotation links.
- Used with the 90 in-lb Torque T-handle and Counter-torque for final tightening.

THREADED INSERTER

Reline Rod-Rod Con., Threaded Inserter (10000834)
Reline ASF Imp. Tray, Middle Level



- Designed to thread into open rod-rod connectors for secure engagement and controlled delivery during engagement to rods during revision surgeries.
- The angled handle design prevents interference from Adjacent Lock Screw Starters.

CHISEL, 5.5mm AND 6.35mm

Reline Chisel, 5.5mm (10000835)
Reline Chisel, 6.35mm (10000836)
Reline ASF Imp. Tray, Middle Level



- Designed to remove bone from around rods during revision surgeries.
- The distal dimensions match the rod-rod connectors to ensure a clear channel for engagement.
- The proximal end of the handle has a stainless steel strike plate for use with a mallet.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE ADJACENT SEGMENT FIXATION IMP. TRAY (RELASFIMP)

ANGLED INSERTER

Reline Rod-Rod Con., Angled Inserter (10000837)
Reline ASF Imp. Tray, Middle Level

- Designed as an alternative inserter for open-open and open-hook rod-rod connectors.
- Engages the central portion of the connectors with an angled offset for clear access for set screw delivery and to minimize interference with surrounding anatomy.



ASF COBB

ASF Cobb (10000839)
Reline ASF Imp. Tray, Middle Level



- Designed to remove bone from around a rod during a revision surgery procedure to create a clear channel to insert a rod-rod connector.
- The proximal end has a metal strike plate for use with a mallet.

ASF ROD TEMPLATE, SINGLE & MULTI-LEVEL

ASF Rod Template, Multilevel (10000840)
ASF Rod Template, Single Level (10000841)
Reline ASF Imp. Tray, Bottom Level

- Designed to approximate the rod length and contour during revision procedures.

RELINE™ OPEN SYSTEM REVIEW GUIDE

RELINE ADJACENT SEGMENT FIXATION IMP. TRAY (RELASFIMP)

EXPANDABLE LOCK SCREW STARTER

Reline Lock Screw Starter, Expandable (D10000745)
Reline ASF Imp. Tray, Middle Level



DESIGN RATIONALE

- Gray silicone handle with purple inlay and knurled gold proximal knob.
- Used to insert lock screws into screws, hooks and rod-rod connectors.
- It is not compatible with any reduction instruments except the Rocker and does not fit down the segmental derotation links.
- Ideal for insertion of lock screws during iliac fixation or when inserting rod-rod connectors. Recommended for use in the closed lock screw of the hook side of open-hook rod-rod connectors to help control the connector during insertion over a rod and enable tightening of the connector onto the rod.

Tip

- *Turning the gold knob at the proximal end clockwise expands the distal tip to ensure rigid engagement to the lock screw. To release the lock screw, turn the gold knob counterclockwise. Ensure this piece is present during set inspection and prior to starting the case.*
- *Do not over tighten or “white-knuckle” with this instrument. The distal drive feature is slotted to allow expansion and may shear or twist if an excess torque is applied.*

RELINE™ OPEN SYSTEM REVIEW GUIDE

3-COLUMN OSTEOTOMY INS. TRAY (3COIN)

RELINE 3CO SPOON RETRACTOR – 15mm, 20mm

Reline 3CO Spoon Retractor – 15mm (10000863),
20mm (10000864)

3-Column Osteotomy Ins. Tray, Top Level

- Designed to protect the anterior and lateral anatomy surrounding the vertebral body during a PSO or VCR osteotomy. Also serves as a visual guide for identification of the lateral and anterior walls of the vertebral body.
- The distal end is rounded and narrows in thickness to ensure the instrument can be smoothly inserted between the outer walls of the vertebral body and surrounding anatomy.
- Available in 15mm and 20mm widths.
- The proximal end of the instrument features a rounded hook that can be used as a holding mechanism for hands free retraction.
- The center of the instrument has a push button hinge that can be used to adjust the retractor to best fit the patient.



RELINE 3CO OSTEOTOME – 7mm, 12mm, 17mm

Reline 3CO Osteotome – 7mm (10000854),
12mm (10000855), 17mm (10000856)

3-Column Osteotomy Ins. Tray, Top Level



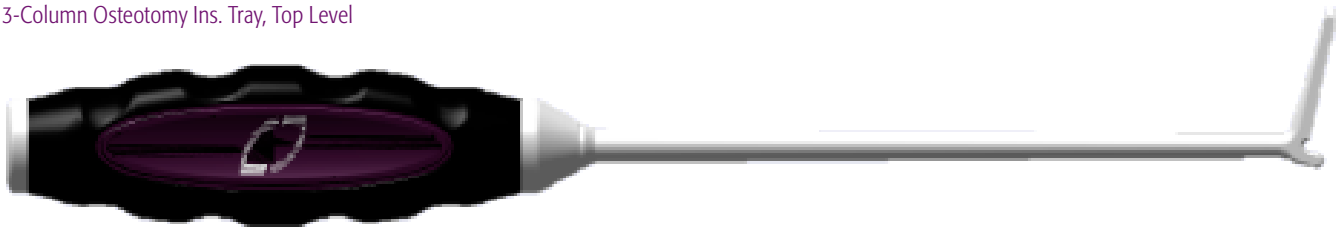
- Designed to make clean cuts into bone during osteotomies.
- Available in 7, 12 and 17mm wide options.
- The handle features a metal strike plate for use with a mallet.

RELINE™ OPEN SYSTEM REVIEW GUIDE

3-COLUMN OSTEOTOMY INS. TRAY (3COIN)

**RELINE 3CO POST WALL IMPACTOR –
25mm, 35mm**

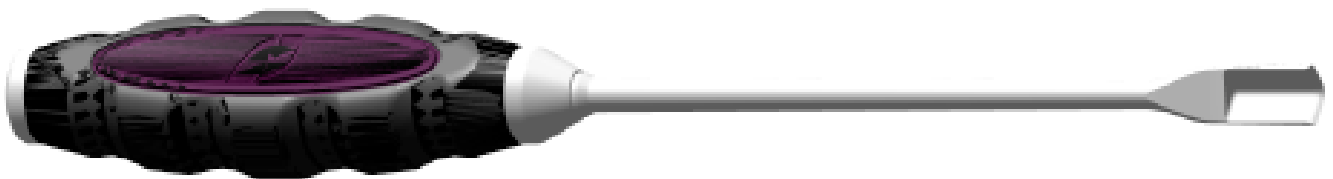
Reline 3CO Post Wall Impactor – 25mm (10000850),
35mm (10000852)
3-Column Osteotomy Ins. Tray, Top Level



- Designed to break the posterior wall of the vertebral body to close a PSO.
- The rounded blunt tip is designed to be inserted in between the posterior wall of the vertebral body and the dura.
- Available in 25mm and 35mm lengths.
- The heel of the instrument minimizes the risk of the instrument slipping during impaction and helps direct the force of the mallet downwards.
- The handle features a metal strike plate for use with a mallet.

**RELINE 3CO OSTEOTOME BOX –
7x7mm, 9x9mm**

Reline 3CO Osteotome Box – 7x7mm (10000872),
9x9mm (10000874)
3-Column Osteotomy Ins. Tray, Top Level



- Designed for resecting the lateral bony walls of a vertebral body during a PSO or VCR.
- Features a 20mm depth stop for safety. Lasermarked every 10mm from 20-40mm for visual depth reference.
- Available in 2 sizes: 7x7mm or 9x9mm.
- The handle features a metal strike plate for use with a mallet.

RELINE™ OPEN SYSTEM REVIEW GUIDE

3-COLUMN OSTEOTOMY INS. TRAY (3COIN)

3CO RETRACTOR, 12mm CURVED

Armada® Ti 3CO Retractor, 12mm Curved (8992203)
3-Column Osteotomy Ins. Tray, Middle Level

3CO RETRACTOR, 10mm SQUARE

Armada Ti 3CO Retractor, 10mm Square (8992207)
3-Column Osteotomy Ins. Tray, Middle Level

- Designed to protect nerve roots and the dura during PSO or VCR.
- Available in curved and square designs to allow for maximum dura protection and exposure around the curved pedicle with minimal retraction of the neural elements.

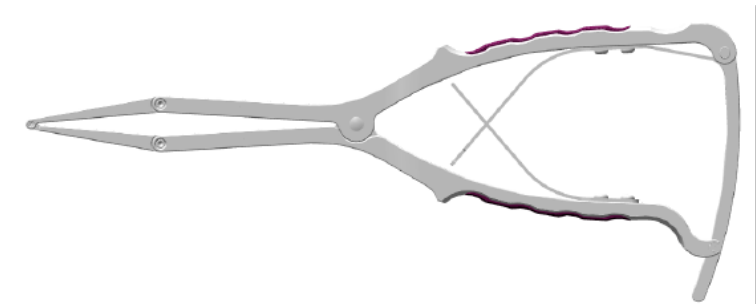


RELINE 3CO WEDGE CALIPER

Reline 3CO Wedge Caliper (10000859)
3-Column Osteotomy Ins. Tray, Middle Level

- Designed to measure the angle of the wedge cut during a PSO.

Tip: Squeezing the handle causes the distal end to wedge open at an angle indicated by the caliper on the proximal end.



3CO COBB, DUAL ENDED

Reline 3CO Wedge Caliper (10000859)
3-Column Osteotomy Ins. Tray, Middle Level



- The blunt rounded tips are designed for use in retracting nerve roots and the dura.

RELINE™ OPEN SYSTEM REVIEW GUIDE

3-COLUMN OSTEOTOMY INS. TRAY (3COIN)

**RELINE 3CO CONICAL SHAVER –
20°, 30°**

Reline 3CO Conical Shaver -20° (10000860), 30° (10000862)
3-Column Osteotomy Ins. Tray, Middle Level



- Designed to hollow out the pedicle during a PSO.
- Available in 20° and 30° options.
- Attaches to a Ratcheting Handle.

3CO RACK

Armada® Ti 3CO Rack (8992999)
3-Column Osteotomy Ins. Tray, Bottom Level

**RELINE 3CO RETRACTOR TIPS –
PSO SHORT, L, R**

Reline 3CO Retractor Tips – PSO Short, L (10000867)
Reline 3CO Retractor Tips – PSO Short, R (10000868)
3-Column Osteotomy Ins. Tray, Bottom Level

3CO RACK TIP, LEFT, RIGHT PSO

Armada Ti 3CO Rack Tip, Left PSO (8992991)
Armada Ti 3CO Rack Tip, Right PSO (8992992)
3-Column Osteotomy Ins. Tray, Bottom Level

- Designed to stabilize the spinal column during a PSO procedure in lieu of using a temporary rod. The rack is 150mm long to enable spanning multiple levels. The arms each have two pivoting joints that lock into position after releasing the button to adjust the angle.
- It is suggested to use 2 retractors placed bilaterally.
- The rack has 3 modes: Distraction (D), Neutral (N) and Compression (C). Turning the thumb piece clockwise moves the rack according to the selected mode.
- The PSO Retractor tips come in short and long lengths and are designed to seat with the pedicle screw. A lock screw is used to secure the tips within the screw and lock orientation of the tulip.
- During closure of the PSO loosening but not removing the lock screw will allow the tulips to rotate around the rounded tip allowing the PSO to collapse to restore lordosis. This minimizes stress on the screws by allowing the vertebral body to collapse naturally rather than through compression of the screws along a rod.



RELINE™ OPEN SYSTEM REVIEW GUIDE

3-COLUMN OSTEOTOMY INS. TRAY (3COIN)

XLIF® CORPECTOMY DOYEN, LEFT AND RIGHT

XLIF Corpectomy Doyen, Left (3230074)
XLIF Corpectomy Doyen, Right (3230075)
3-Column Osteotomy Ins. Tray, Bottom Level

- Used to release tissue from around the rib in preparation for removal.



XLIF CORPECTOMY RIB REMOVAL TOOL

XLIF Corpectomy Rib Removal Tool (3230076)
3-Column Osteotomy Ins. Tray, Bottom Level

- Designed to create a clean cut through a rib.



RELINE™ OPEN SYSTEM REVIEW GUIDE

HOOK IMP. TRAY (RELHOOKIMP)

PEDICLE ELEVATOR

Reline Hook Prep Tool, Pedicle (10000698)
Reline Hook Imp. Tray, Bottom Level



- The Pedicle Elevator is used to prepare the articular process and expose the pedicle for pedicle hook insertion.
- Features a bifurcated blunt blade with slightly rounded edges to minimize the potential for penetrating the outer cortex of the pedicle.

LAMINA ELEVATOR

Reline Hook Prep Tool, Lamina (10000697)
Reline Hook Imp. Tray, Bottom Level



- The Lamina Elevator is used to separate the ligamentum flavum from the lamina and/or verify the space between the laminar and peridural structures in preparation for lamina hook insertion.
- Features blunt, slightly rounded edges to minimize the potential for dural damage.

TRANSVERSE PROCESS ELEVATOR

Reline Hook Prep Tool, Trans Process (10000699)
Reline Hook Imp. Tray, Bottom Level



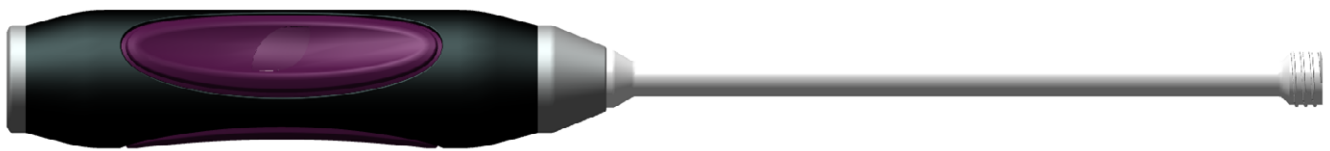
- The Transverse Process Elevator is used to separate ligamentous attachment from the underside of the transverse process.
- Features blunt, slightly rounded edges to minimize the potential for undesired tissue disruption.

RELINE™ OPEN SYSTEM REVIEW GUIDE

HOOK IMP. TRAY (RELHOOKIMP)

THREADED HOOK INSERTER

Reline Hook Inserter, Threaded (10000692)
Reline Hook Imp. Tray, Bottom Level



- The Hook Inserter threads into the top of the hook to secure the Hook Pusher within the rod slot.
- Provides secure engagement to the hook and acts as an extending arm for controlled positioning of the hook.

HOOK PUSHER

Reline Hook Pusher (10000695)
Reline Hook Imp. Tray, Bottom Level

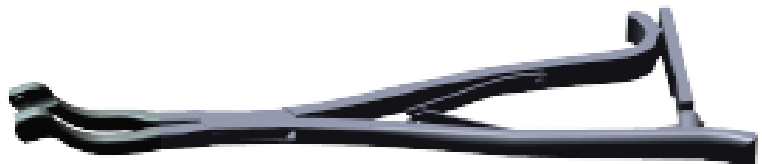


- The Hook Pusher rests within the rod slot of the hook and is rigidly held in position when the Hook Inserter has been fully threaded into the top of the hook.
- The handle extends at a 45° angle to minimize interference with surrounding anatomy.
- The proximal end of the Hook Pusher features a strike plate that may be gently tapped with a mallet to ease hook insertion.

BILATERAL HOOK INSERTER

Reline Hook Inserter, Bilateral (10000694)
Reline Hook Imp. Tray, Bottom Level

- Designed to clasp onto hooks for secure engagement during insertion of the implant.
- The offset arms enable unobstructed access for set screw delivery.



HOOK IMP. TRAY (RELHOOKIMP)

UNILATERAL HOOK INSERTER

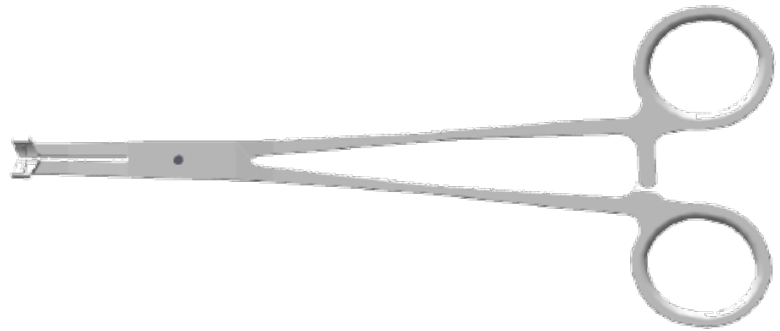
Reline Hook Inserter, Unilateral (10000693)

Reline Hook Imp. Tray, Bottom Level

Reline Iliac Screw Imp. Tray, Bottom Level

Reline ASF Imp. Tray, Bottom Level

- Designed as a multi-purpose tool that clasps onto hooks, open offset connectors and rod-rod connectors for secure engagement during insertion of the implant. It was originally designed for hooks, but is compatible with all open tulip implants.
- The unilateral attachment allows for clear access for set screw delivery.





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