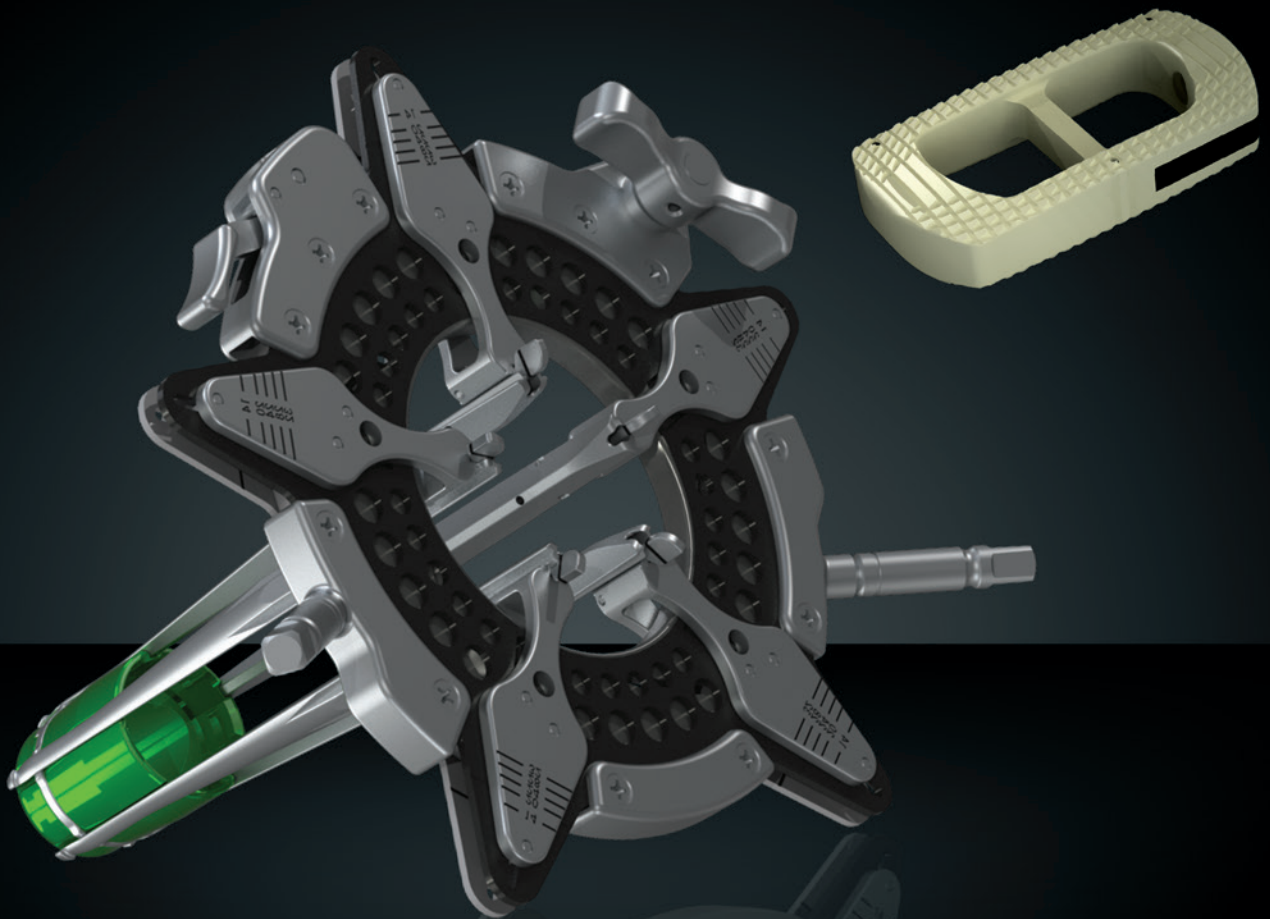


# Surgical Technique Guide



primaLIF™ LLIF  
Lateral Lumbar Interbody Fusion System



Rethinking Possibilities, Reshaping Lives

## System Overview

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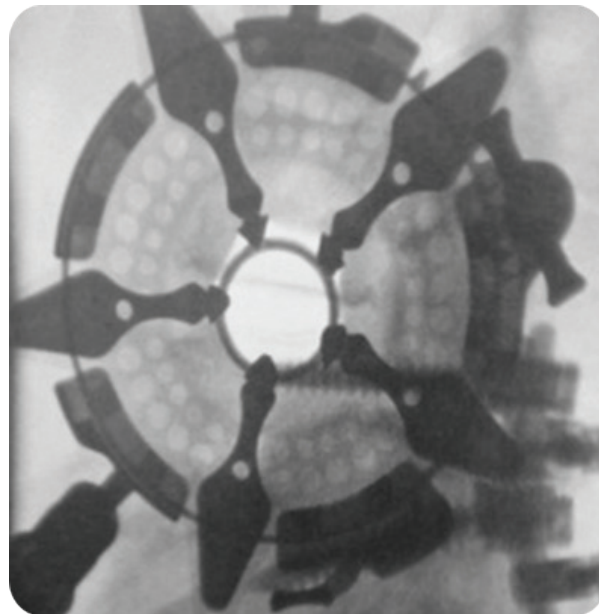
The primaLIF™ LIF Interbody Fusion System is a PEEK interbody cage system implanted to replace collapsed, damaged, or unstable vertebral discs due to degenerative conditions, tumor or trauma. The system is designed to provide anterior spinal column support and bone graft containment to promote bony fusion. This Lateral Lumbar Interbody Fusion (LLIF) system includes insertion instruments for the interbody implant, a retractor system, table arm, and disc preparation instruments.

## Indications for Use

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The OsteoMed Spine primaLIF™ LLIF is indicated for intervertebral body fusion of the lumbar spine to be used with autogenous bone graft, from L2 to S1, in skeletally mature patients who have had six months of non-operative treatment. The device is intended for use at either one level or two contiguous levels for the treatment of degenerative disc disease (DDD) and these patients may have up to Grade I spondylolisthesis or retrolisthesis at the involved levels. DDD is defined as back pain of discogenic origin with degeneration of the disc confirmed by history and radiographic studies. The device is intended for use with supplemental fixation such as primaLOK™ SP and primaLOK™ FF which has been cleared for use in the lumbar spine.

*For additional information, warnings and contraindications, please refer to the Product Insert.*



OsteoMed Spine would like to express its sincere appreciation to the following surgeons for their tireless pursuit of improving patient care as exemplified in this surgical technique guide. Through their hard work and diligence in helping create this technique guide, surgeons throughout the world will be able to deliver world class solutions for their patients using the primaLIF™ Lateral Interbody Solution.

**Daniel Lee, M.D.**  
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**Philip S. Yuan, M.D.**  
Memorial Orthopedic Surgical Group  
Long Beach, CA

**David Raskas, M.D.**  
Orthopedic Sports Medicine &  
Spine Care Institute

**Robert Vande Guchte, M.D.**  
Lincoln Orthopedic Center

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# DESIGN RATIONALE

## RETHINKING LATERAL ACCESS

Rethinking lateral access interbody fusion surgery in a fresh new way inspired the design of the OsteoMed Spine PrimaLIF™ Lateral Lumbar Interbody Fusion (LLIF) System. As surgeons strive to achieve better outcomes while streamlining the surgical procedure and minimizing the impact on the patient's anatomy, they need medical devices that help achieve these goals.

The primaLIF™ retractor is like no other due to its proprietary internal radial expansion method. The PEEK interbody device includes a shape that matches the endplates, provides a large window for graft material, and is delivered with an innovative inserter design.

## RETRACTOR HIGHLIGHTS

The primaLIF™ retractor provides access to the spine via the lateral approach. Its minimal starting diameter allows for reduced insertion trauma to surrounding muscle and tissue. Proprietary radial dilation does not require monitoring and tissue is gently retracted. Once opened, a sturdy, secure ring assures consistent visibility throughout the procedure.



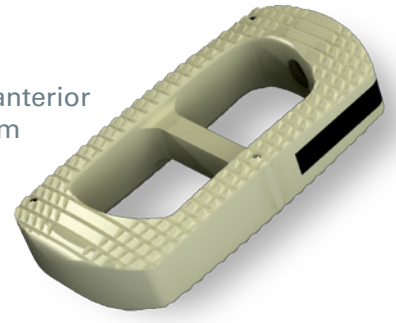
## DESIGN FEATURES

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flat Base</b>                          | Flat base provides a low profile retractor avoiding risk of c arm interference and allows the surgeon to work as closely to the disc space as possible.                                                                                                                                                                                                                                                                                                             |
| <b>5 Blades</b>                           | Thin blades provide smallest initial diameter to slide down a guidewire reducing tissue trauma. They also allow for improved visibility of the surgical field by reducing the amount of metal in the patient. Improved access to disc material is provided as instruments can reach between blades particularly at the outer edges of the disc. Flexible blades are able to maneuver around boney anatomy without the need to pick up the retractor and reposition. |
| <b>Aluminum Ring</b>                      | Once in place, the ring provides a secure opening within which to work without blade “coning” due to tissue pressure.                                                                                                                                                                                                                                                                                                                                               |
| <b>Quick Connect Rigid Arm Attachment</b> | Strong attachment with the quick connect design provides stability of the retractor throughout the procedure. Efficient connecting of the arm provides improved OR time and reduced frustration from a loose retractor arm connection.                                                                                                                                                                                                                              |
| <b>Neuromonitoring Capability</b>         | primaLIF™ works with the hospital neuromonitoring system eliminating the need for expensive equipment for a lateral procedure.                                                                                                                                                                                                                                                                                                                                      |

## CLINICAL BENEFITS

## INTERBODY IMPLANT HIGHLIGHTS

The PrimaLIF™ LLIF Unitary PEEK Implant provides structural stability of the anterior column. The device is a single component radiolucent PEEK cage with Tantalum markers for visibility during imaging and dual chambers for bone graft material. The recessed bar design allows for a complete graft material covering to contact endplates for greater fusion potential.



## DESIGN FEATURES

## CLINICAL BENEFITS

### Tapered Leading Edge

The tapered leading edge of the implant provides less risk of nerve irritation upon insertion. It provides a means of distraction of the disc space as it progresses into place.

### Convex Curvature

The convexity of the implant allows it to fit securely in the disc space matching the concave nature of the endplates. It provides a means of controlled disc space distraction while minimizing damage to the endplates as it is advanced into position.

This maximizes contact of the graft material to improve the potential for fusion to occur.

### Surface Etching

“Teeth” on surface of the implant provide resistance to movement and potential subsidence, giving security to fusion construct.

### Implant Sizing

primaLIF™ implants are available in a variety of sizes, parallel and lordotic shapes, assuring the proper fit with every patient.

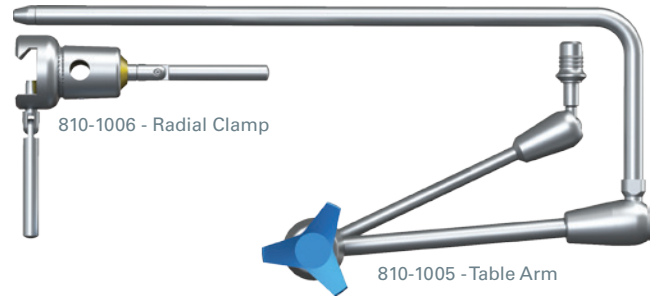
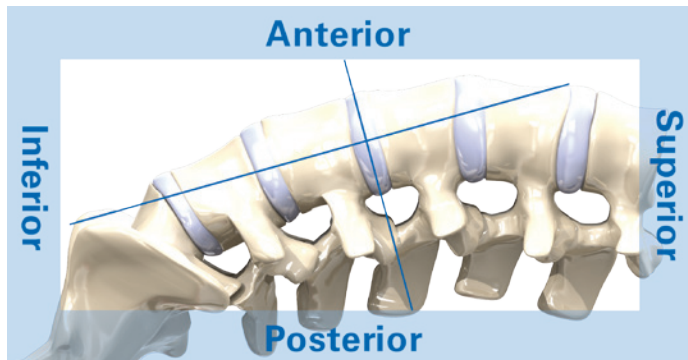
### Tantalum Markers

There are three tantalum markers imbedded in the implant to provide clear identification of its location in the disc space.

# SURGICAL TECHNIQUE

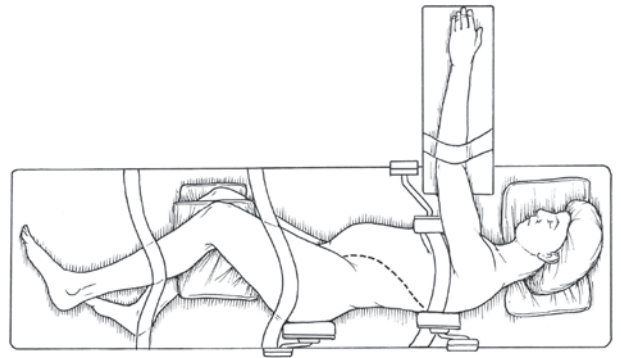
## ACCESS AND PREPARATION

Place the Radial Clamp (810-1006) on the bed prior to draping the patient.



### Preparing the Patient

Place the patient in the lateral decubitus position on the operating table. Flex the knees and hips to minimize the tension on the psoas and lumbar plexus. The table can be broken (flexed) to allow for better access between the ribs and iliac crest.



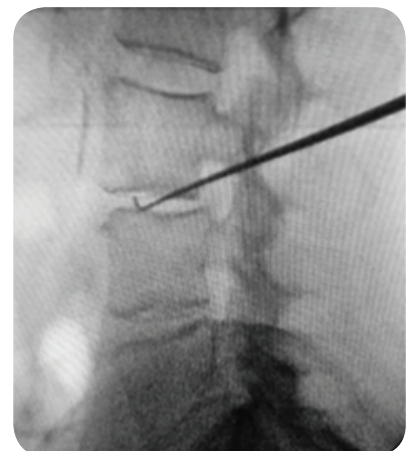
### Neuromonitoring Option

primaLIF™ utilizes a DIN 1.5 compatible probe to locate neural elements. This will connect to the majority of neuromonitoring systems available today.



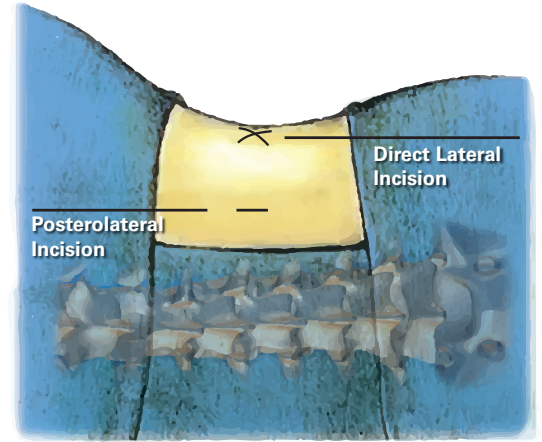
### Targeting

Using fluoroscopy, identify the desired location for the final implant placement. Recommended location is just anterior of the midpoint of the disc.



Utilizing a one or two incision approach, make an incision over the desired area and enter the retroperitoneal space.

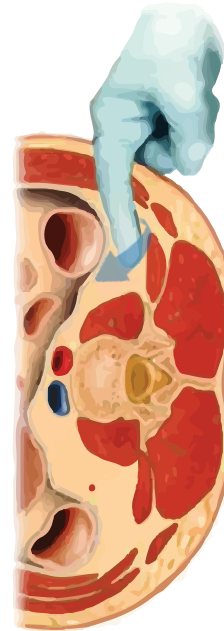
*NOTE: If two levels will be fused, the initial incision may be biased in the direction of the vertebral body between the two spine fusion levels.*



## ACCESS AND PREPARATION

### Skin Incision and Tissue Palpation

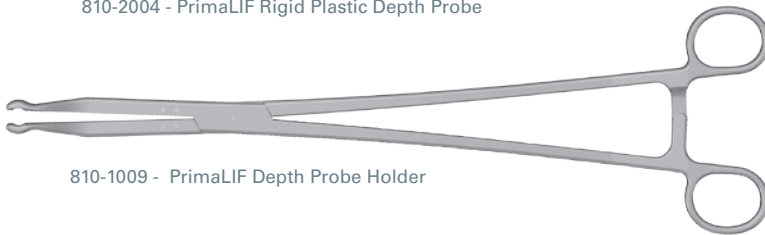
Make a direct lateral incision and palpate using the index finger and blunt instruments as a guide to find the psoas muscle. Use finger to sweep the peritoneum anterior and move critical soft tissues or structures out of the path of instruments.



810-2000 - Neuromonitoring Probe



810-2004 - PrimaLIF Rigid Plastic Depth Probe



810-1009 - PrimaLIF Depth Probe Holder

It is recommended to utilize neuromonitoring to confirm nerves are posterior prior to retractor placement. Using the Neuromonitoring probe along with the Rigid Plastic Depth Probe (810-2004) will facilitate this process. Gently rotate while advancing through the psoas to identify nerve location.



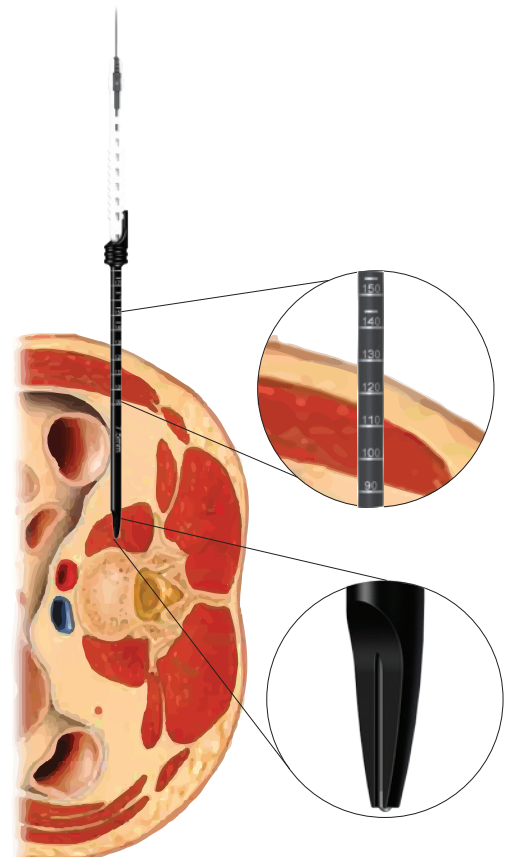
810-2005 - Plastic Depth Probe

If neuromonitoring is not to be used, surgeon may utilize the primaLIF Plastic Depth Probe (810-2005)(Blue) to gently traverse the Psoas muscle and dock on the disc space.

Ensure the peritoneum is anterior to the Depth Probe during insertion. Blade length can be determined from the depth markings on the depth probe. It is recommended to add 10mm to the marking at skin level.

primaLIF provides a probe holder to keep the surgeon's hand out of the imaging field. It is recommended that the probe be held close to the skin to provide stability.

**IMPORTANT NOTE: Confirm probe location with A/P and Lateral Fluoro shots.**

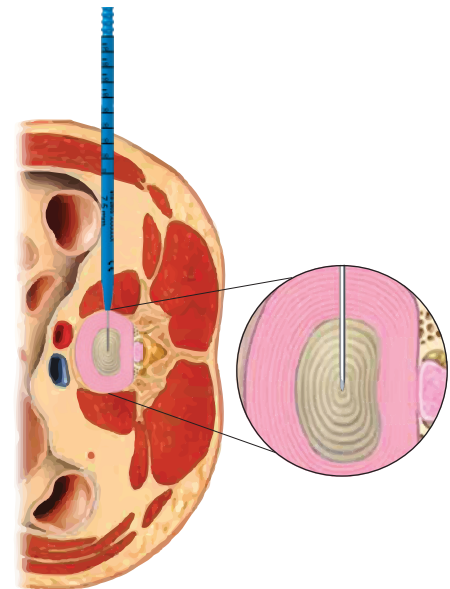
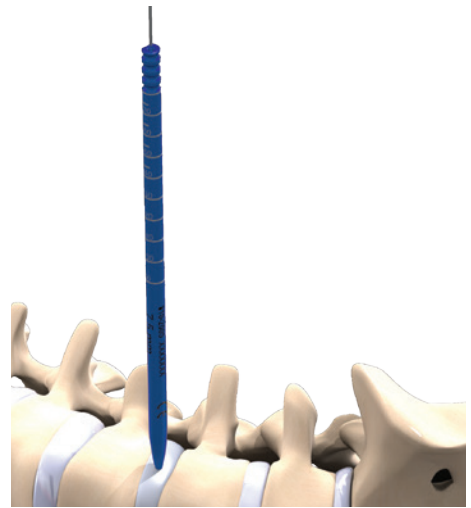




### Targeting the Surgical Site

Insert the stainless steel K Wire (810-0014) or the Nitinol K wire (800-1216) through the Plastic Probe and into the center of the intervertebral space.

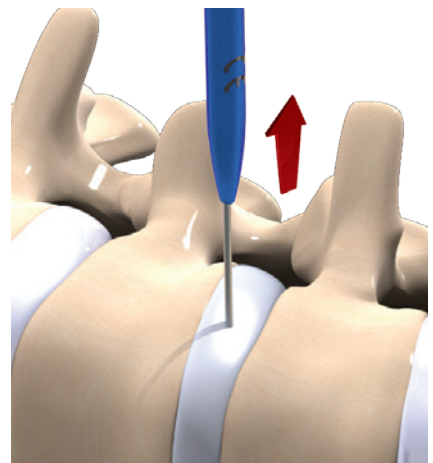
**IMPORTANT NOTE:** Do not advance K-wire beyond midpoint of the disc space.



Verify the position of the K-Wire using fluoroscopy.



Remove the Depth Probe, leaving the K-Wire in place.



## ACCESS AND PREPARATION

### Assembling the Retractor Frame

Use the markings on the depth probe to determine the required blade length at the level of the skin. Blades are available in lengths from 90mm to 130mm, in 10mm increments: followed by 145mm, 160mm and 175mm.

Adding 20mm to the reading of the initial dilator to determine appropriate blade length to clear surrounding body wall is recommended.

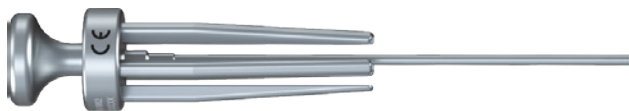
**Recommend:** Open retractor fully to make blade attachment easier by rotating the Ratchet Knob clockwise. Assemble the required length Retractor Blades to the Radial Retractor by aligning the mating dovetail at the top of the blades with each of the blade clamps on the frame. Pull it down into position until the blade lock feature engages. The Retractor Release button may be pressed to allow the retractor to be fully closed at this time. With the release button engaged, rotate the Ratchet Knob counter clockwise until fully closed.

For blade lengths of 90-110, use the short retention clip and for blades 120-175, use the long retention clip.

**NOTE:** Ensure the Retractor Blades are fully inserted into the frame and the blade lock is captured so the blades cannot be removed without actuating the Release Button.

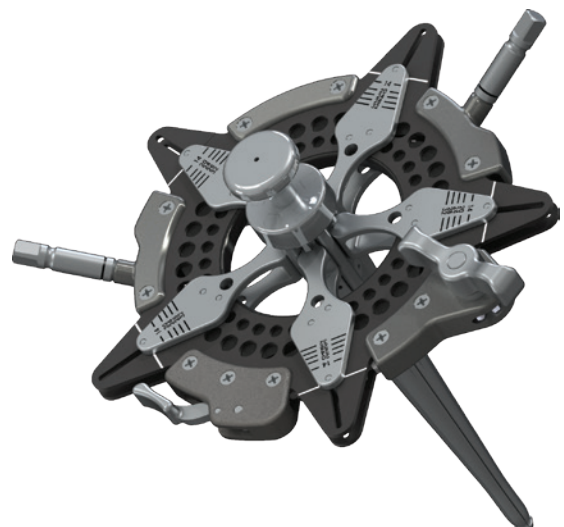
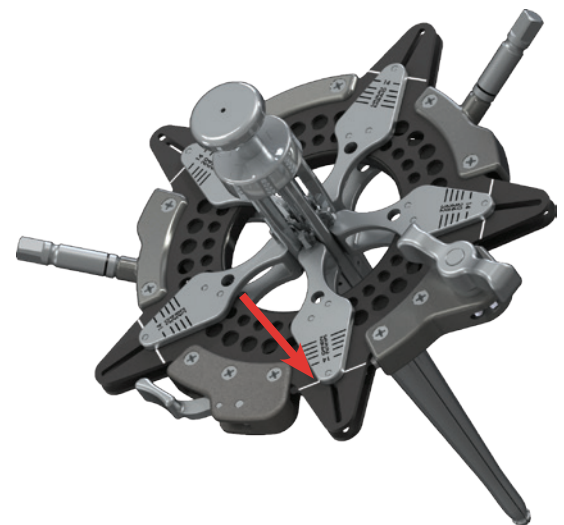
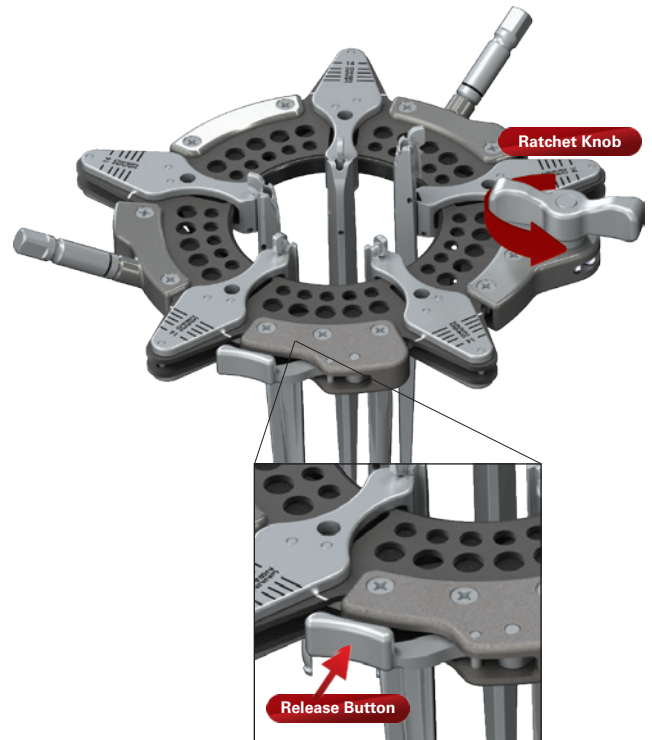


810-1001 - PrimaLIF Blade Retention Clip (90-120)



810-1002 - PrimaLIF Blade Retention Clip - Long (130-175)

Secure the Retractor Blades in position by placing the Blade Retention Clip over the mating grooves on the outside of the blades until it is fully seated. The assembled frame is ready for insertion when the clip is in place and the tips of the blades are nested against each other to create a rigid cannula.



Visually confirm that the Blade Retention Clip is in place, and insert the Retractor Assembly over the K-Wire.

*Recommend: Gently turning retractor from side to side upon insertion to reduce tissue irritation.*

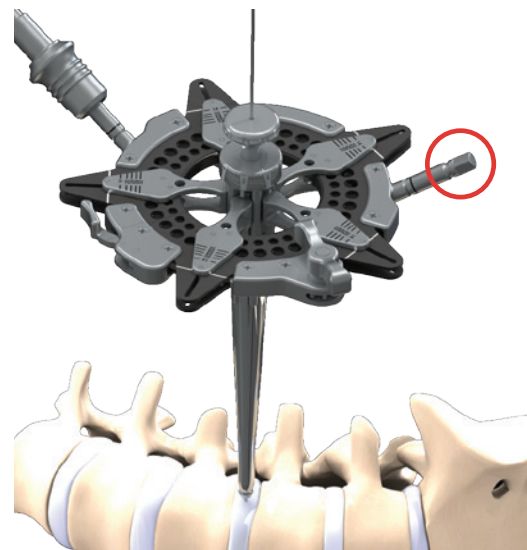
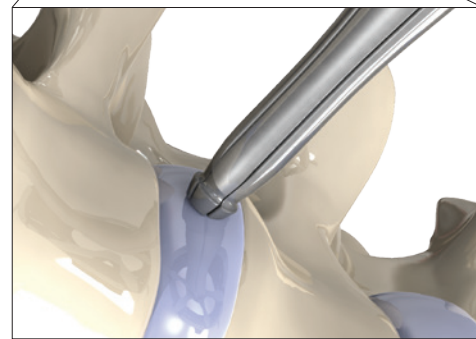
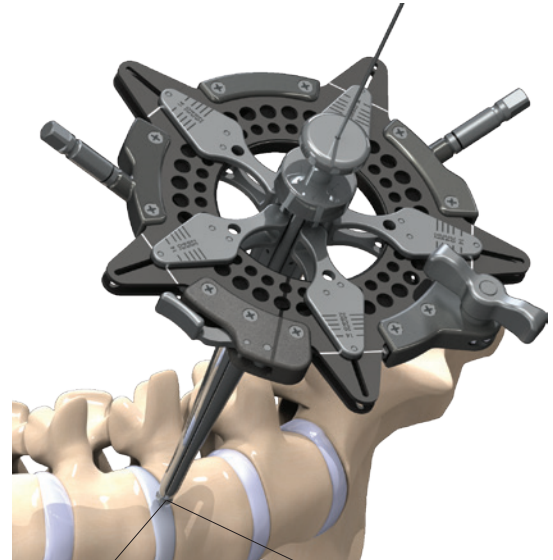
*NOTE: Be careful not to advance the K-Wire through the disk space.*

*Be sure to follow the trajectory of the K-Wire to avoid slipping out of the tunnel made by the blades.*

Confirm the blade tips are fully seated and against the annulus and on the k-wire using fluoroscopy.

Confirm the retractor is orthogonal to the body by using the oval markers on the retractor.

Table Arm may be attached to retractor prior to dilation.



The primaLIF retractor uses a “quick connect” adapter to stabilize the retractor in place. Simply pull back on the tip of the arm and insert the post from the retractor and then release. There is an option to use two arms if desired but a second arm must be ordered separately.

# RETRACTION AND DILATION

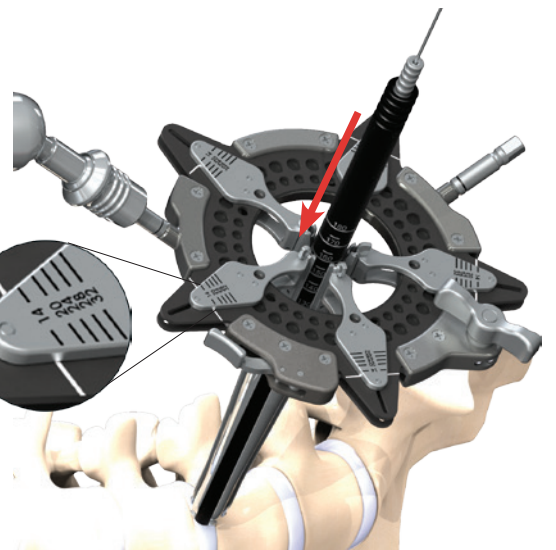
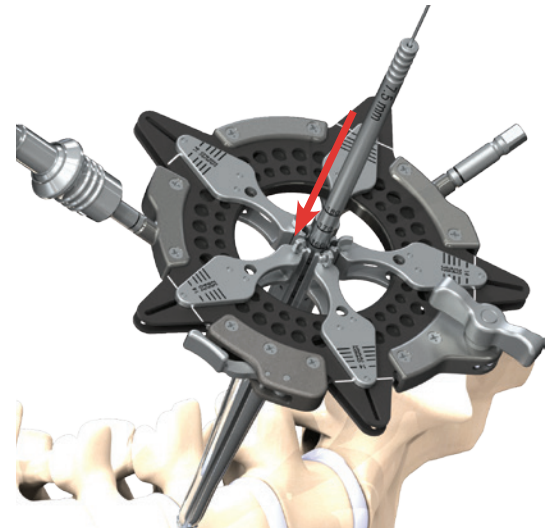
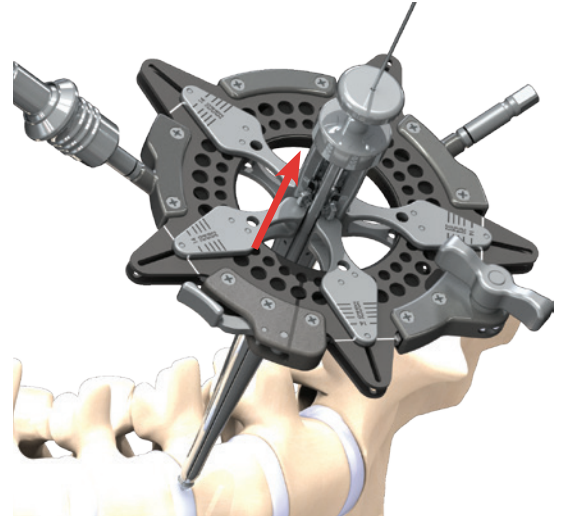
## Radial Blade Expansion

Keeping downward pressure on the frame, gently remove the blade retention clip over the K-Wire. Ensure the K-wire is positioned into the disc space. The frame and blades are now able to expand in a radial fashion to provide visualization of the disc space.

The primaLIF Retractor has been designed with flexibility in mind. Dilation may be performed through traditional insertion of the provided sequential dilators. However, if difficulty is encountered inserting dilators due to muscle and soft tissue, the retractor may be opened by rotating the Ratchet Knob clockwise. Each increment will open approximately 2mm and will be met by an audible click. In addition, there are visible lasermarks on each blade-arm to provide visual confirmation of dilation, and the amount of dilation the retractor has completed.

Insert the 7.5mm First Dilator over the K-Wire, radially dilating Retractor Blades.

Confirm appropriate depth with fluoroscopy and/or index markings on the dilator.



810-2007 - PrimaLIF 7.5mm First Dilator



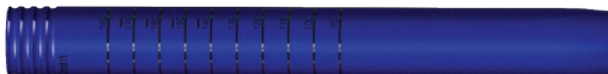
810-2008 - PrimaLIF 14mm Second Dilator



810-2020 - PrimaLIF 20mm Dilator



810-2024 - PrimaLIF 24mm Dilator



810-2028 - PrimaLIF 28mm Dilator



810-2032 - PrimaLIF 32mm Dilator

Insert the 14mm Second Dilator, and confirm the appropriate depth in the same manner.

Verify correct positioning of the 14mm dilator using A/P fluoroscopy. Confirm that the Kwire is not advancing in the disc and out the contralateral side with dilator placement

*NOTE: If surgeon needs assistance advancing the dilators, one may utilize the primaLIF Dilator Pusher (810-1011) by placing it on top of the dilator and gently malleting the top. The shorter primaLIF Ring Inserter Pusher (810-1012) is available for the ring dilator.*



810-1011 - PrimaLIF Dilator Pusher

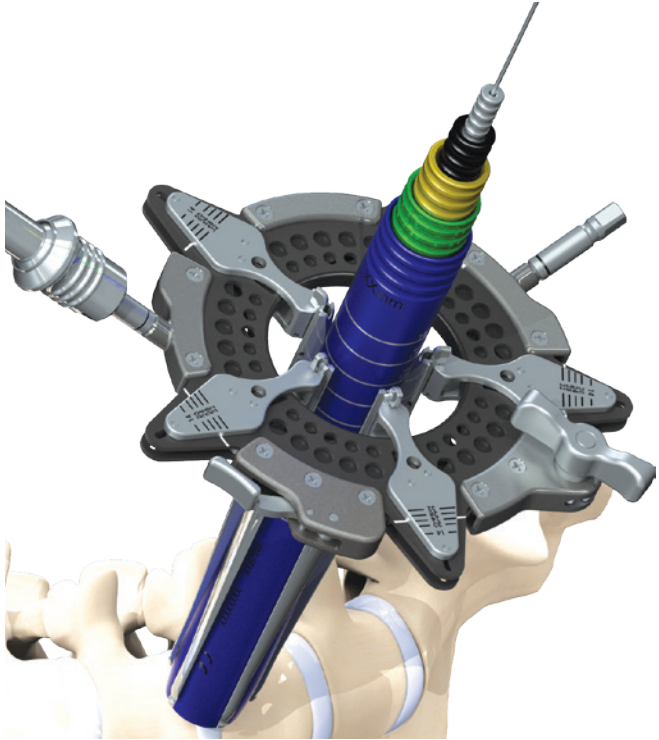


810-1012 - PrimaLIF Ring Inserter Pusher

Selecting Proper Access Ring

Insert each dilator sequentially until the desired opening has been achieved. Use the chart below to aid in choosing the appropriately sized ring to fit the desired implant size.

|                       |    | Interbody Access Ring Sizing Chart |    |    |
|-----------------------|----|------------------------------------|----|----|
|                       |    | Interbody Width (mm)               |    |    |
| Interbody Height (mm) | 7  | 20                                 | 24 | 28 |
|                       | 9  | 20                                 | 24 | 28 |
|                       | 11 | 24                                 | 24 | 32 |
|                       | 13 | 24                                 | 28 | 32 |
|                       | 15 | 24                                 | 28 | 32 |
|                       | 17 | 28                                 | 28 | 32 |



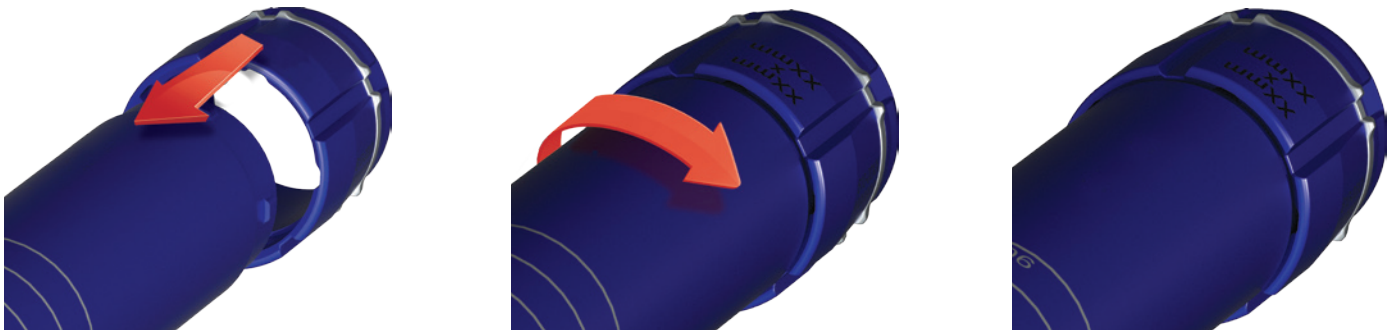
Determine the appropriate Access Ring size necessary to visually expose the spinal fixation site based on the needs of the patient. Access Rings are available in 20mm, 24mm, 28mm, and 32mm.



**IMPORTANT NOTE:** Placement of the Access Ring requires its corresponding Dilator remain inserted in the retractor.

The Access Ring must also be assembled to the Access Ring Inserter of the same color.

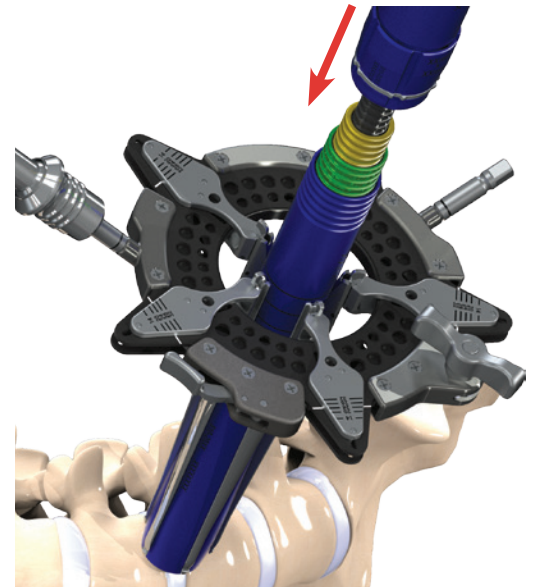
To assemble the Access Ring with the Access Ring Inserter, align the mating tabs and rotate clockwise.



## RETRACTION AND DILATION

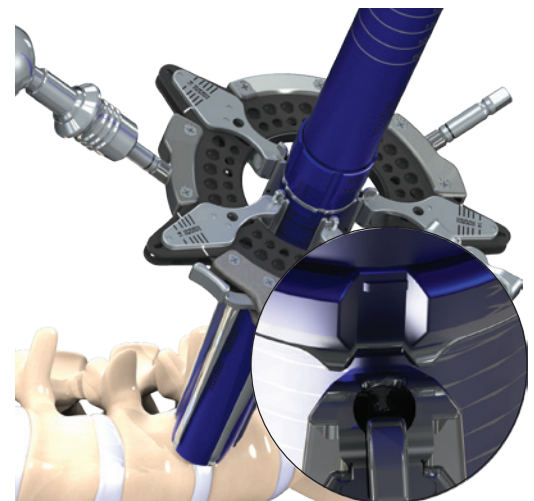
### Deploying the Access Ring/Tube

Slide the Access Ring assembly over the Dilator that corresponds with the Access Ring Inserter size and color up to the Retractor Blades.

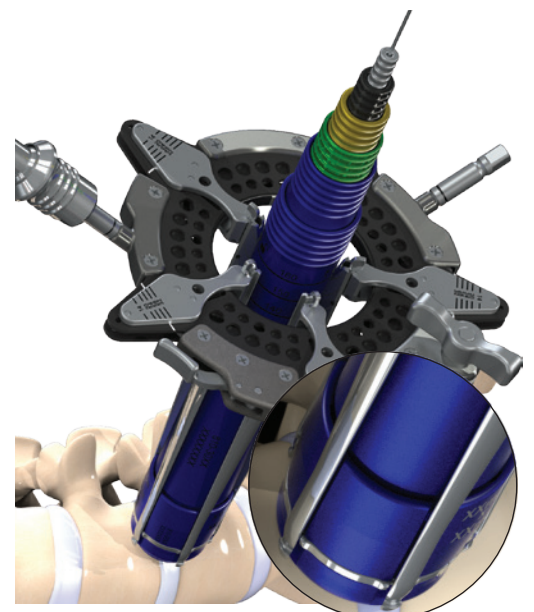


Align the grooves of the Access Ring with the inner face of each Retractor Blade. Advance the Access Ring Inserter until the appropriate depth is indicated by aligning the depth marks with the corresponding lines in the Retractor Blades.

To ease the insertion of the access ring, if required, rotate the ratchet knob on the retractor. This will open the retractor 2mm per click and can facilitate easier insertion of the access ring if needed.



The metal ring around the base of the Access Ring will contact the inner tip of the Retractor Blades when fully seated and may be confirmed with fluoroscopy.

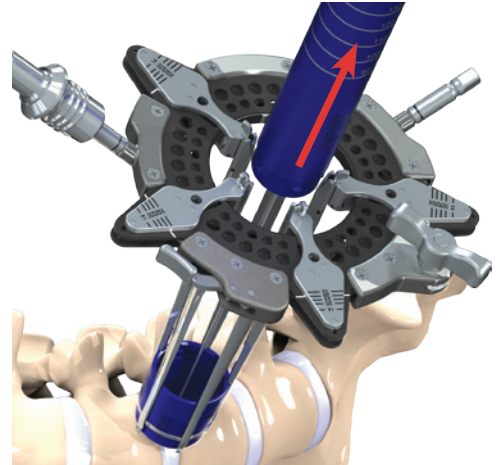
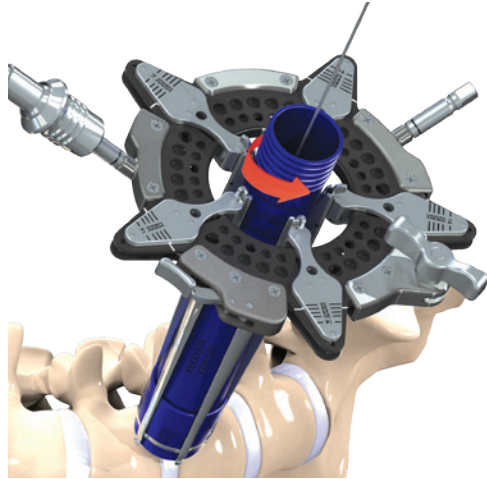


## Visualizing the Surgical Site

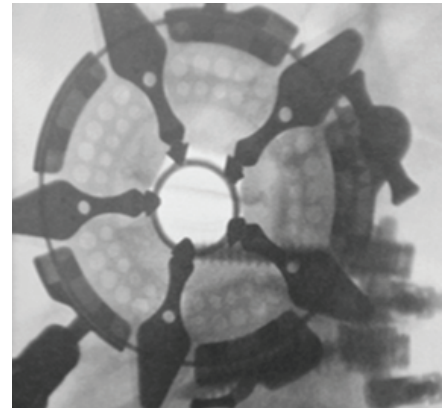
To secure the access ring to the retractor, rotate the Access Ring inserter **counter-clockwise** and remove, leaving the Access Ring in place. Use "lock/unlock" markings on the ring to aid access to ring release or lock.

Remove inner dilators. Verify that adequate visualization of the surgical area has been achieved and that the retractor is opened adequately to allow a complete discectomy.

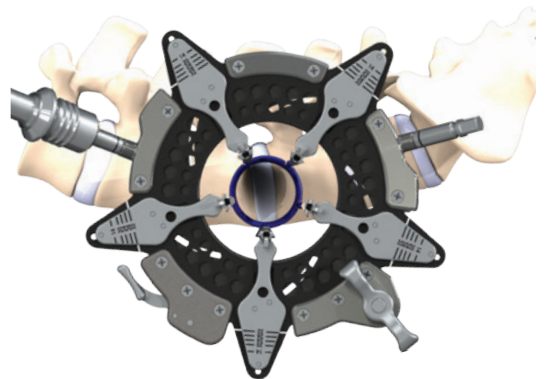
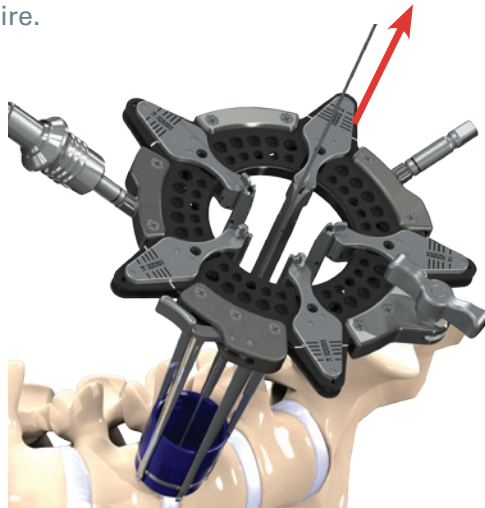
**IMPORTANT NOTE:** Maintain the guidewire in the disc space until adequate visualization is achieved. Once satisfied, guidewire may be removed.



Verify proper positioning of the retractor over disc space using A/P and Lateral fluoroscopy.



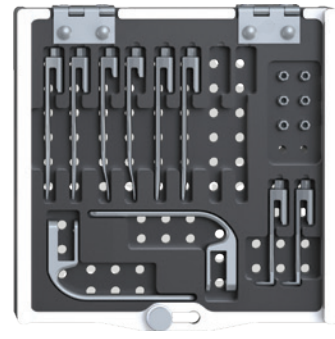
Remove the K-Wire.



# RETRACTOR FIXATION

primaLIF provides added security options if desired. Shims and fixation pins may be used.

For additional stability, several options are available. The retractor shim caddy (810-0403) contains the necessary components.



The disc shim holder (810-4000) is used to insert each of the disc shims as well as the vertebral body pins if desired.



There are four (4) types of shims included in the shim caddy as described below.

810-4001  
Ring Disc Shim



810-4002  
Ring Disc Shim – Curved Ring



810-4003  
Ring Disc Shim – Wide



810-4004  
Ring L-Bracket Shim



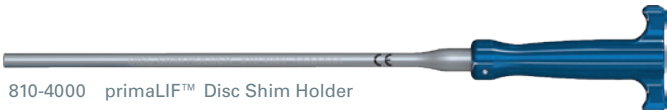
810-4001, 4002, 4003 are designed to be placed on the ring and into the disc space. 810-4004 is to be used with the fixation pin and placed on the inside of the ring. There are three fixation pin lengths. These include 14mm (810-4005), 21mm (810-4006) and 28mm (810-4007).



**NOTE: All of these pins are single-use ONLY.**

## Shim Holder Assembly

To assemble the shim driver, insert the primaLOK™ FF Driver Shaft into the top primaLIF™ Disc Shim Holder.



When attaching the disc shim holder to any disc shim or disc body pin, align the hex with the distal tip of the shim holder. Place the threaded driver shaft through the cannulated disc shim holder and thread into the disc shim or disc body pin as shown.





The primaLIF™ system provides a disposable light source to be used if greater illumination is required.

The primaLIF™ light source uses a clip to attach anywhere along the black retractor ring for intraoperative flexibility



810-1004 - Light Cable



## Removing Disc Material

Use the Annulotomy Knife (811-0010) to prepare the disc space for discectomy. Insert the Cobb along both endplates and through the contralateral annulus, releasing the disc from the endplates and allowing for distraction of the disc space. Use fluoroscopy to confirm the release of the contralateral annulus and ensure the instruments are not over-inserted beyond the contralateral apophyseal ring.



811-0010 - Annulotomy Knife

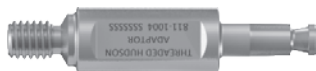


811-0018 - Small Cobb, Straight



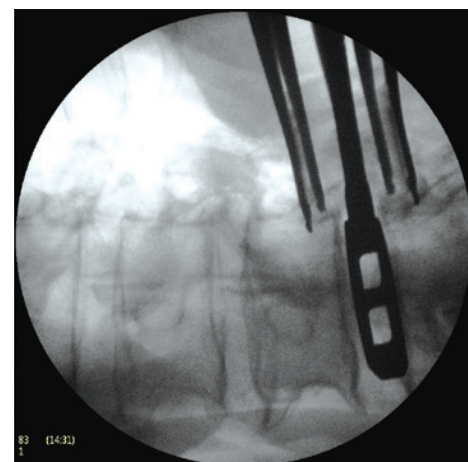
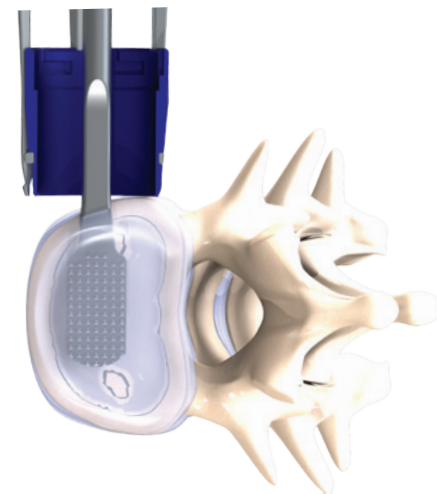
811-0041 - 14mm Cobb, Straight

The system provides two Hudson adaptors if the slap hammer is necessary. These can screw into the top of the handles if needed.



811-1004 - Threaded Hudson Adaptor

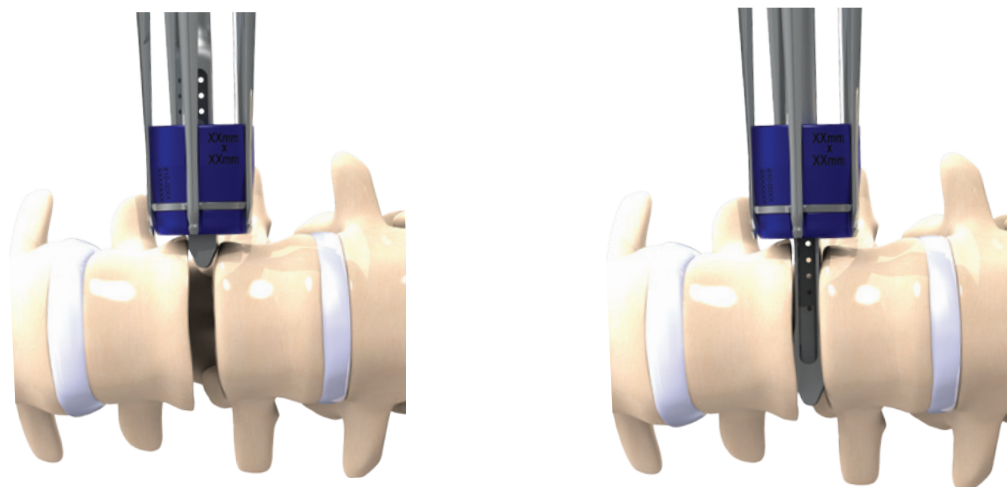
primaLIF™ provides medium and large cup currettes, small and medium endplate scrapers, box osteotomes and a curved rasp for disc preparation. Fluoroscopy should be used during disc prep to ensure instruments do not go beyond the contralateral edge of the vertebral body.



## DISC PREPARATION

### Implant Preparations

If necessary, Paddle Sizers are provided to determine the appropriate implant size for the patient. Paddle Shavers and an Endplate Rasp are provided for preparing the endplates. Box osteotomes may also be used to prepare endplates to receive a specific implant height. Use fluoroscopy to confirm completion of endplate preparation and ensure the instruments are not over-inserted beyond the contralateral apophyseal ring. Be sure to minimize damage to the bony endplates to avoid implant subsidence.



### Sizing the Implant

Use trials to assist in selecting the appropriate implant for the patient's disc space. Begin trialing with a conservatively sized trial to avoid over-stressing soft tissues.

It is recommended that the Modular T-Handle be used to insert the implant trials.



811-1002 - Modular Large Hudson T-Handle

**NOTE:** Use caution to avoid over-insertion of the trial. Once the trial is fully seated into the disc space, assess the fit of the implant trial in the disc space.

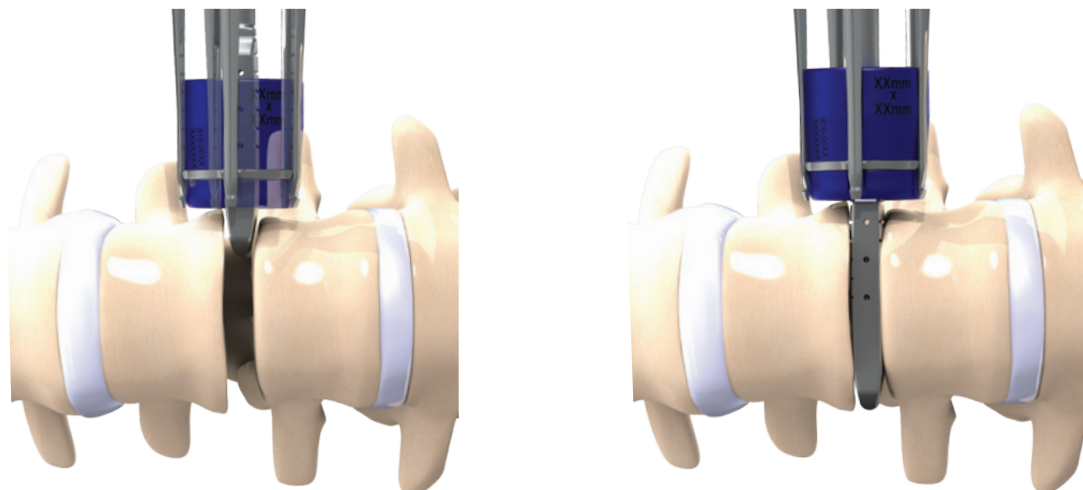
The PrimaLIF trials are designed to provide multiple data points for implant selection under fluoroscopy. There are parallel and lordotic sizers. The three dots help to confirm the implant is parallel to the endplates. The grooves on top are in 5mm increments to help narrow the implant options for the patient



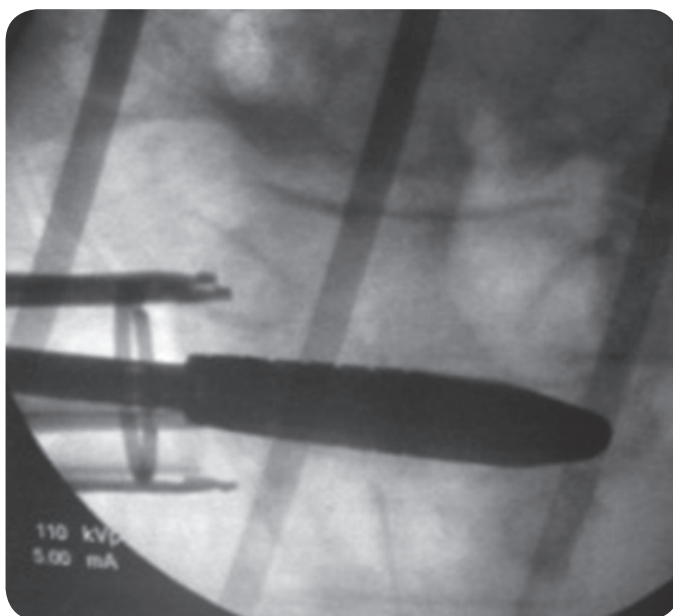
### Sizing the Implant (Cont.)

Place the implant trial through the retractor and ensure that the orientation and initial location of the trial is correct. It is recommended that an A/P fluoroscopy confirms the proper trajectory is parallel to the endplates. Use of a mallet may be necessary to advance the trial into the prepared disc space.

*NOTE: If necessary, the Large Hudson Slap Hammer may be used. Ensure the Slap Hammer is properly secured prior to use.*



Under fluoroscopy determine appropriate implant length using notches seen on the implant trial. Notches range from 30mm to 60mm in 5mm increments.



Repeat sizing steps until the appropriate implant size and lordotic angle has been determined.

# IMPLANT PLACEMENT

## Placing the Implant

For added flexibility, inserters are available in straight, right and left facing configurations.



812-1004 - PrimaLIF LLIF Fixed Modular Inserter



812-1002 - PrimaLIF LLIF Angled Modular Inserter - Left



812-1003 - PrimaLIF LLIF Angled Modular Inserter - Right

Attach the quick connect Handle (811-1003) or the Straight Handle (811-1000) to the selected implant inserter.



811-1000 - Modular Large Hudson Straight Handle

Attach the selected implant to the inserter by aligning the hole of the implant with the threaded shaft of the inserter. Spin the knob at the proximal end of the inserter until it threads into the implant securely. The two nubs on the tip of the inserter should be aligned with the holes on the implant.

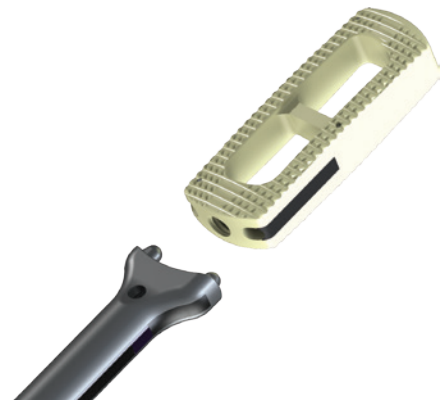
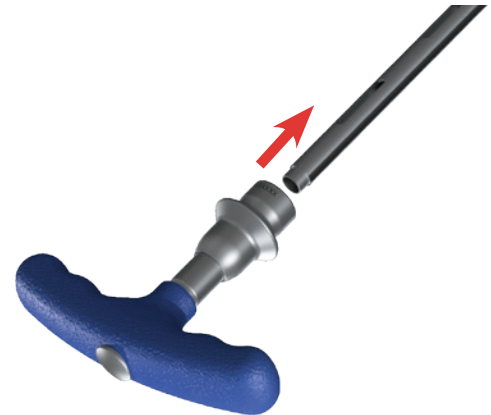
The black line on the implant must line up with the black line on the shaft of the inserter

Pack desired bone graft material into the interior of the primaLIF™ Interbody Implant.

primaLIF™ Interbody is cleared for use with autogenous bone graft material.

Secure the implant onto the inserter by rotating the locking knob clockwise with the thumb and forefinger until it is secure.

**NOTE:** There is an anterior and posterior side to the implant. The black laser mark on the implant should line up with the laser mark on the inserter.



## Placing the Implant (Cont.)

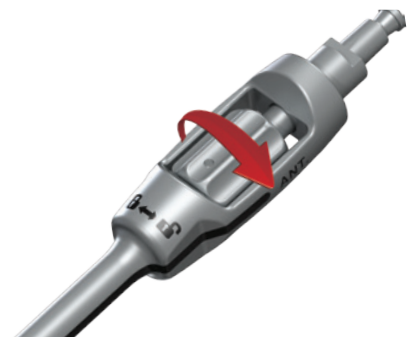
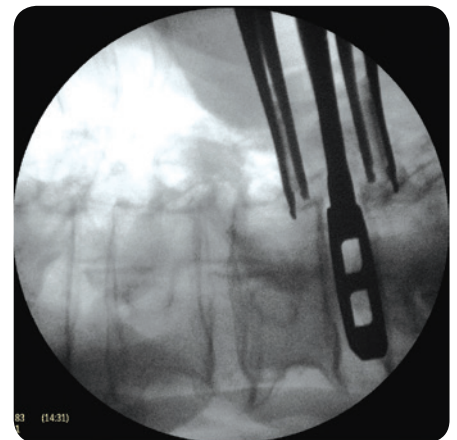
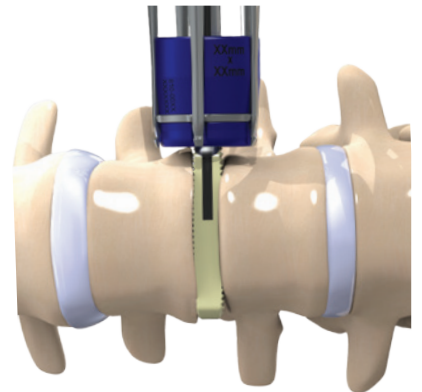
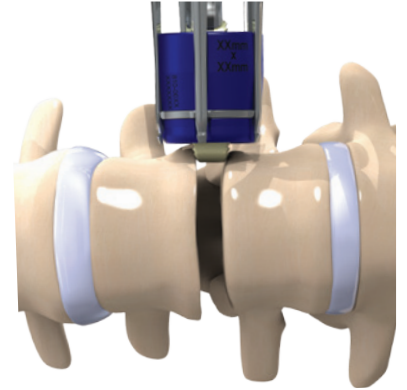
Insert the implant into the prepared disc space. It is recommended that fluoro images be taken to confirm proper alignment of implant to disc space prior to impaction. Gentle impaction is possible with a mallet. Use caution to avoid over impacting implant and advancing it beyond the contralateral apophyseal ring.

**CAUTION:** Use caution to avoid over-insertion of the implant, which could result in implant damage or patient harm.

Ensure correct positioning with fluoroscopy and confirm position with the implant markers.

Confirm anterior and posterior positioning via fluoroscopy using reference markers in the implant to verify placement within the disc space.

Remove the inserter tool from the implant by rotating the locking knob counterclockwise until the instrument disengages.



# IMPLANT REMOVAL

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## Implant Removal

If removal of the implant is necessary, attach modular inserter to the implant, then attach the slap hammer to the connection at the proximal end of the modular inserter.

To attach the slap hammer, lift the sliding ring on the end of the hammer, attach to mate with the instrument. Then, the slide ring down over the tip to secure engagement



811-1001 - Large Hudson Slap Hammer

Once a secure connection has been made, remove the implant via the slap hammer.

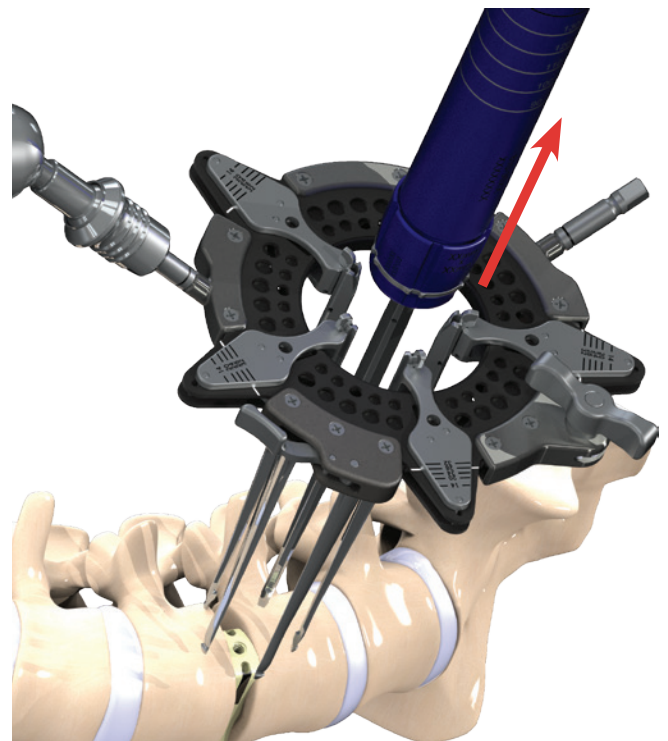
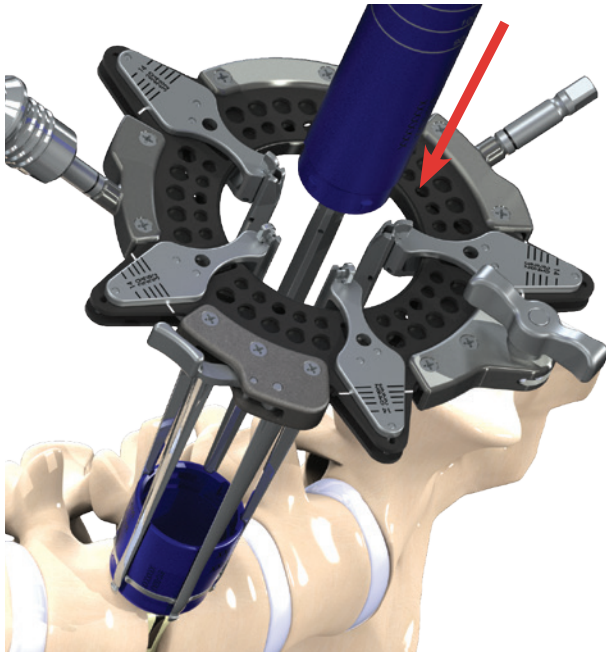
**IMPORTANT NOTE: Implants must NOT BE REUSED once removed.**



## REMOVING THE RETRACTOR

Insert the Access Ring Inserter through the Retractor Blades and rotate **clockwise** to the lock sign until the mating connection is aligned.

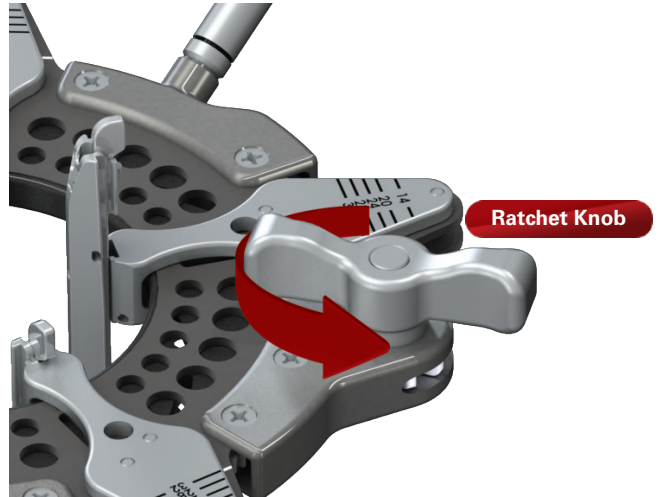
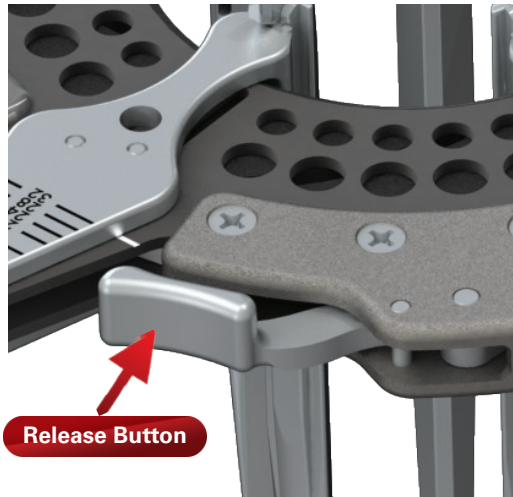
**NOTE:** Do not attempt to remove the Radial Retractor from the soft tissue without removing the Access Ring (or Access Tube) and collapsing the Retractor Blades into the closed position.



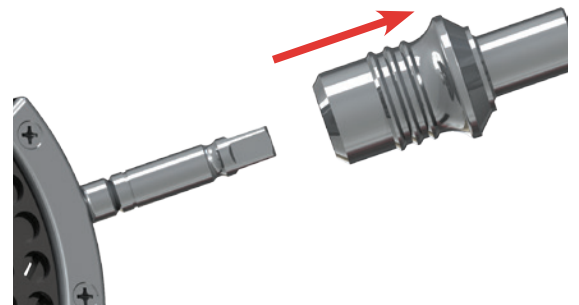
Gently remove the Access Ring Inserter with the Access Ring attached from within the Retractor blades.

## REMOVING THE RETRACTOR

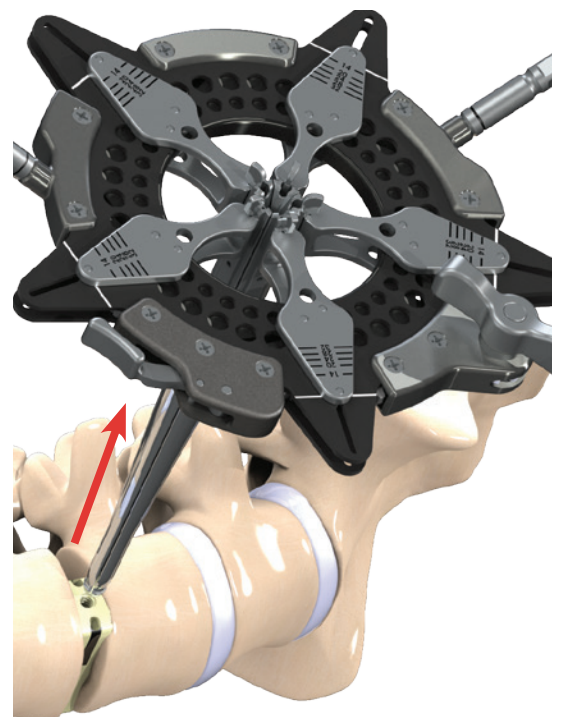
Press and hold the ratchet release button, while rotating the ratchet knob counter-clockwise. Continue until the retractor returns to the closed position.



Release the Radial Retractor from the Table Arm.



Remove the Radial Retractor and Retractor Blades from the skin incision.



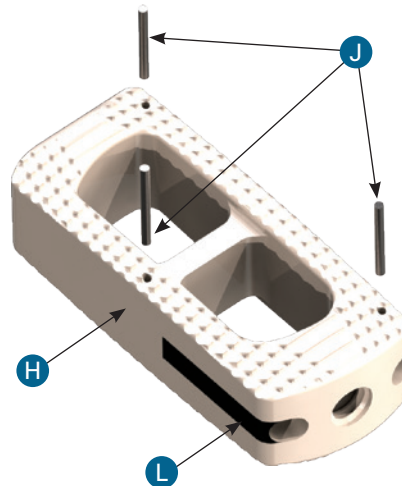
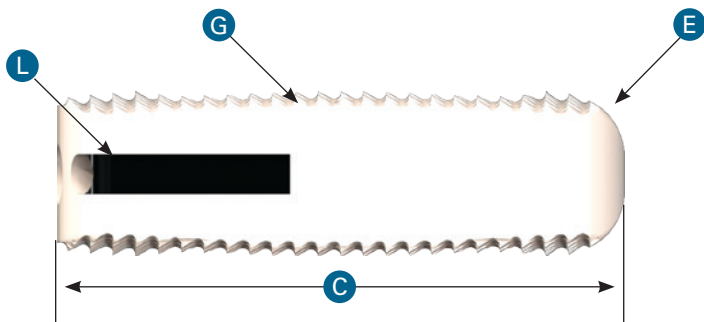
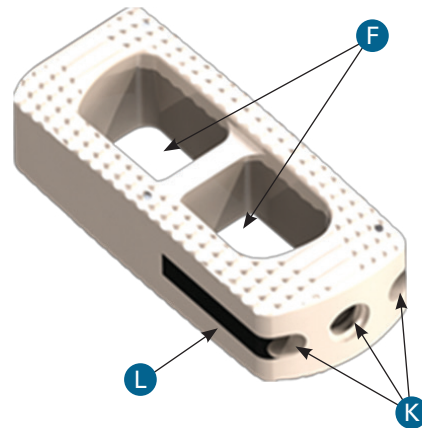
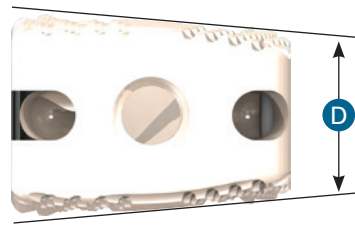
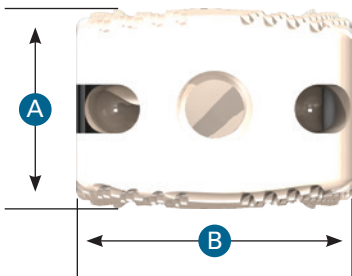


INTERBODY IMPLANTS

Implant Specifications

| Geometric Feature             | Description                                                             |
|-------------------------------|-------------------------------------------------------------------------|
| Height <b>A</b>               | 7mm (Parallel Only), 9mm, 11mm, 13mm, 15mm, 17mm                        |
| Width <b>B</b>                | 18mm, 22mm, 26mm*                                                       |
| Length <b>C</b>               | 30mm*, 35mm*, 40mm*, 45mm, 50mm, 55mm, 60mm                             |
| Lordotic Angle <b>D</b>       | 0° (Parallel) and 8° (Lordotic)                                         |
| Nose <b>E</b>                 | Wedge-shaped taper                                                      |
| Graft Chambers <b>F</b>       | Two (2) central cavities for bone graft material<br>Recessed middle bar |
| Serrations <b>G</b>           | Serrations on inferior/superior surface                                 |
| Implant Materials <b>H</b>    | PEEK Optima LT1                                                         |
| Markers <b>J</b>              | 3X markers (Tantalum per ASTM F560)                                     |
| Inserter Connections <b>K</b> | 1 threaded hole and 2 cavities for inserter                             |
| Anterior Indicator <b>L</b>   | Black line indicating the anterior of the implant                       |

\*Special Order Items requiring lead time



## PRODUCT INFORMATION

### IMPLANT SIZES

Sizes and Quantity in Standard Set Configuration

#### Width: 18mm

##### Parallel (0° Lordosis)

|        |    | Height |   |    |    |    |
|--------|----|--------|---|----|----|----|
|        |    | 7      | 9 | 11 | 13 | 15 |
| Length | 45 | 1      | 1 | 1  | 1  | 1  |
|        | 50 | 1      | 1 | 1  | 1  | 1  |
|        | 55 | 1      | 1 | 1  | 1  | 1  |
|        | 60 |        | 1 | 1  | 1  | 1  |

##### Lordotic (8° Lordosis)

|        |    | Height |    |    |    |
|--------|----|--------|----|----|----|
|        |    | 9      | 11 | 13 | 15 |
| Length | 45 | 1      | 1  | 1  | 1  |
|        | 50 | 1      | 1  | 1  | 1  |
|        | 55 | 1      | 1  | 1  | 1  |
|        | 60 | 1      | 1  | 1  | 1  |

#### Width: 22mm

##### Parallel (0° Lordosis)

|        |    | Height |   |    |    |    |
|--------|----|--------|---|----|----|----|
|        |    | 7      | 9 | 11 | 13 | 15 |
| Length | 45 | 1      | 1 | 1  | 1  | 1  |
|        | 50 | 1      | 1 | 1  | 1  | 1  |
|        | 55 | 1      | 1 | 1  | 1  | 1  |
|        | 60 |        | 1 | 1  | 1  | 1  |

##### Lordotic (8° Lordosis)

|        |    | Height |    |    |    |
|--------|----|--------|----|----|----|
|        |    | 9      | 11 | 13 | 15 |
| Length | 45 | 1      | 1  | 1  | 1  |
|        | 50 | 1      | 1  | 1  | 1  |
|        | 55 | 1      | 1  | 1  | 1  |
|        | 60 | 1      | 1  | 1  | 1  |

#### Width: 26mm (Optional)

##### Parallel (0° Lordosis)

|        |    | Height |   |    |    |    |
|--------|----|--------|---|----|----|----|
|        |    | 7      | 9 | 11 | 13 | 15 |
| Length | 50 | 1      | 1 | 1  | 1  | 1  |
|        | 55 | 1      | 1 | 1  | 1  | 1  |
|        | 60 | 1      | 1 | 1  | 1  | 1  |

##### Lordotic (8° Lordosis)

|        |    | Height |    |    |    |
|--------|----|--------|----|----|----|
|        |    | 9      | 11 | 13 | 15 |
| Length | 50 | 1      | 1  | 1  | 1  |
|        | 55 | 1      | 1  | 1  | 1  |
|        | 60 | 1      | 1  | 1  | 1  |

### GRAFT VOLUME

Graft volumes are measured in cc's and are the same for parallel and lordotic.

#### Width: 18mm

|        |    | Height |     |     |     |
|--------|----|--------|-----|-----|-----|
|        |    | 9      | 11  | 13  | 15  |
| Length | 45 | 2.8    | 3.6 | 4.2 | 4.9 |
|        | 50 | 3.4    | 4.2 | 4.9 | 5.7 |
|        | 55 |        | 4.8 | 5.7 |     |

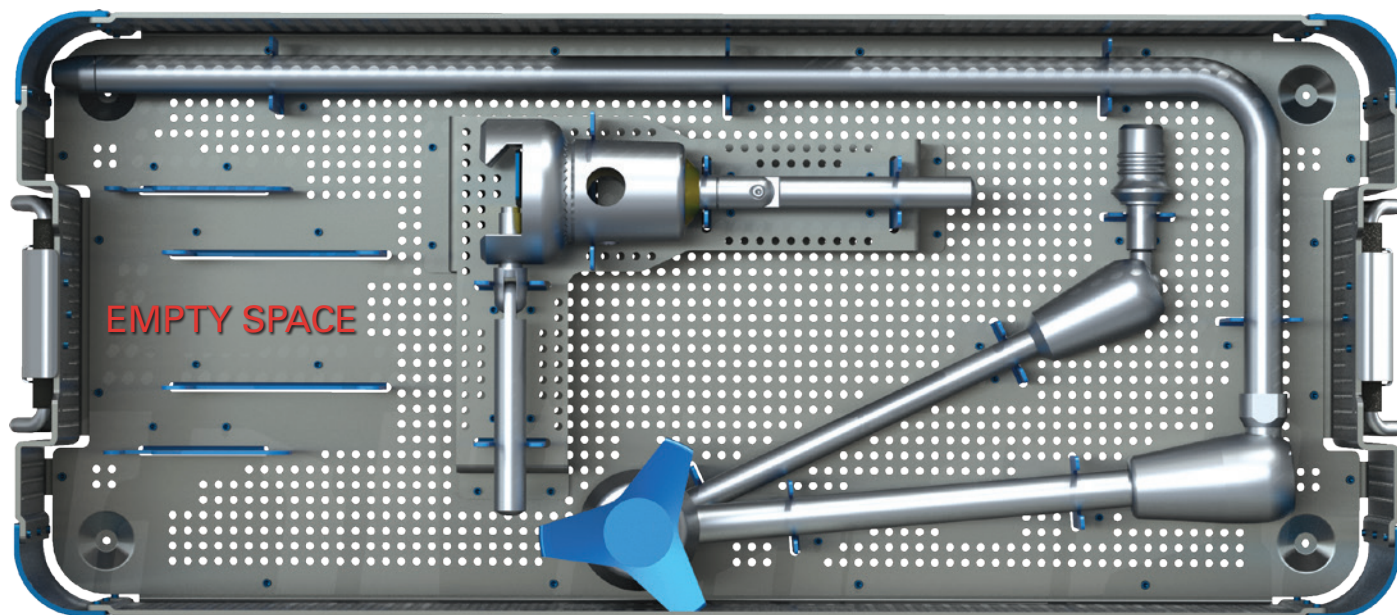
#### Width: 22mm

|        |    | Height |     |     |     |
|--------|----|--------|-----|-----|-----|
|        |    | 9      | 11  | 13  | 15  |
| Length | 50 | 4.6    | 5.7 | 6.7 | 7.7 |
|        | 55 | 5.3    | 6.5 | 7.7 | 8.8 |
|        | 60 |        | 7.3 | 8.6 |     |

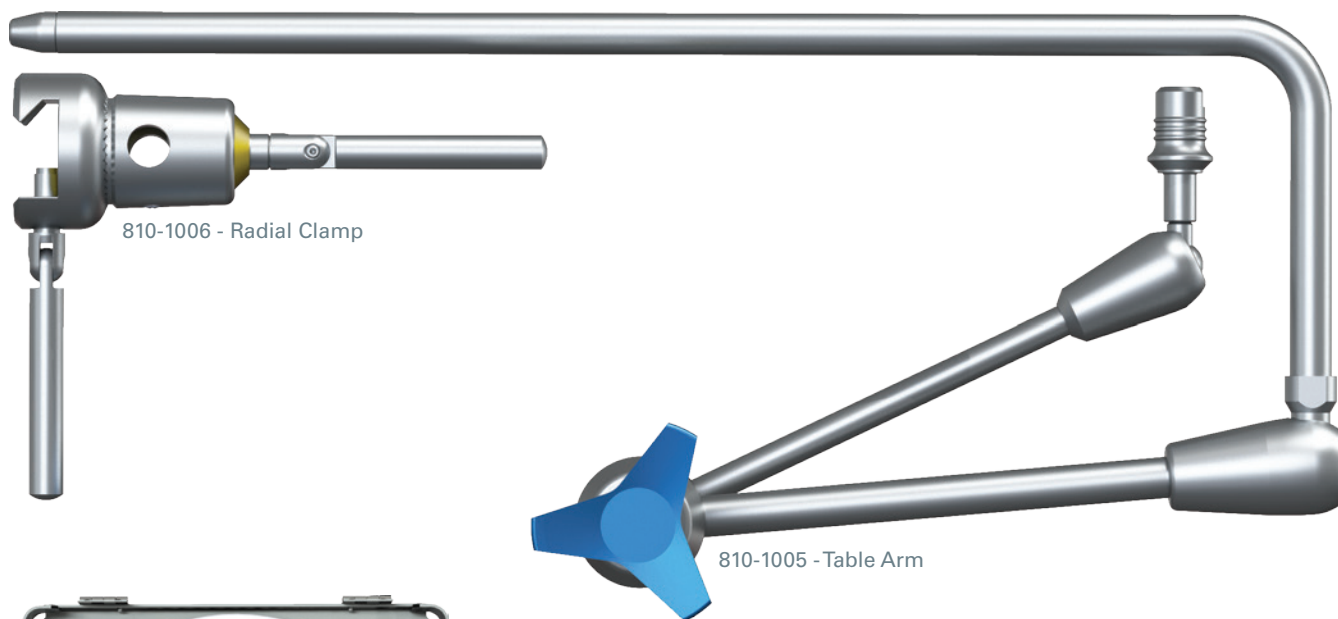
#### Width: 26mm

|        |    | Height |     |      |      |
|--------|----|--------|-----|------|------|
|        |    | 9      | 11  | 13   | 15   |
| Length | 50 | 5.7    | 7.0 | 8.3  | 9.6  |
|        | 55 | 6.6    | 8.0 | 9.5  | 11.0 |
|        | 60 |        | 9.1 | 10.7 |      |

TRAY 1, TABLE ARM ASSEMBLY



810-0402 - Table Arm Tray (Base Level)



810-1006 - Radial Clamp

810-1005 - Table Arm



810-0404 - Light Cable Tray



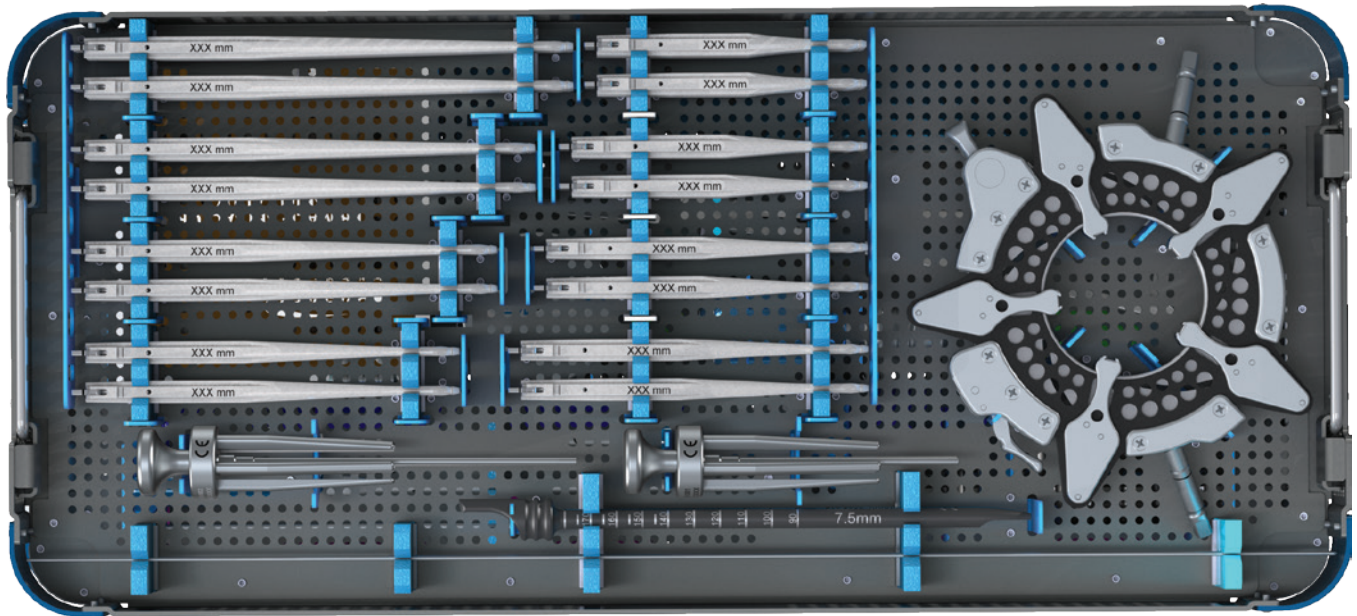
810-1004 - Light Cable



810-1003-SP - Disposable Light Clip, Sterile

# RETRACTOR

## RETRACTOR TRAY (TOP LEVEL), RETRACTOR COMPONENTS



810-0400 - Retractor Tray (Top Level)

(3) 810-0014 - PrimaLIF 1.4mm X 18" Guide Wire

810-0015 - PrimaLIF 1.4mm X 20" Guide Wire (Optional)

810-0016 - PrimaLIF 1.4mm X 14" Guide Wire (Optional)

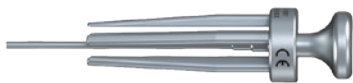
(3) 800-1216 - PrimaLOK 20" Nitinol Guide Wire (Optional)



810-2005 - PrimaLIF Plastic Depth Probe



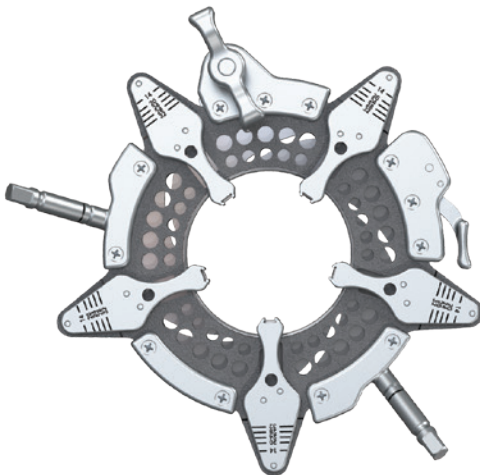
810-2004 - PrimaLIF Rigid Plastic Depth Probe



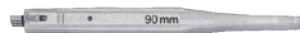
810-1001 - PrimaLIF Blade Retention Clip



810-1002 - PrimaLIF Blade Retention Clip - Long



810-1100 - PrimaLIF Racheting Radial Retractor



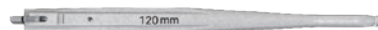
(6) 810-0090 - PrimaLIF 90mm Retractor Blade



(6) 810-0100 - PrimaLIF 100mm Retractor Blade



(6) 810-0110 - PrimaLIF 110mm Retractor Blade



(6) 810-0120 - PrimaLIF 120mm Retractor Blade



(6) 810-0130 - PrimaLIF 130mm Retractor Blade



(6) 810-0145 - PrimaLIF 145mm Retractor Blade

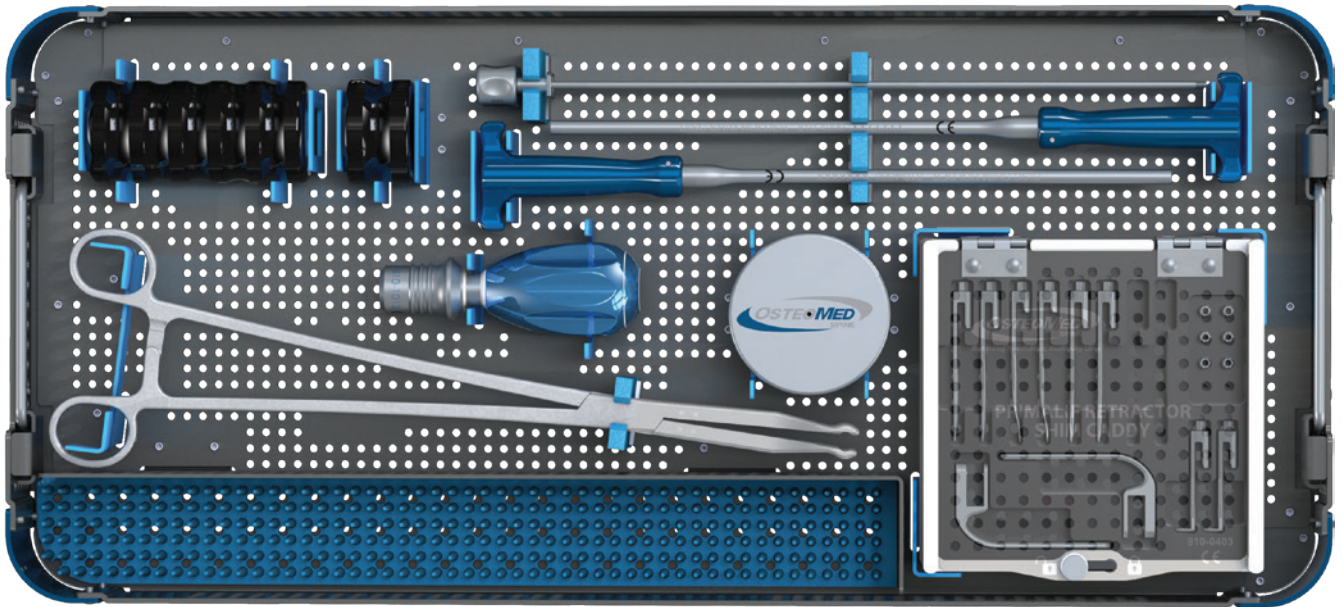


(6) 810-0160 - PrimaLIF 160mm Retractor Blade



(6) 810-0175 - PrimaLIF 175mm Retractor Blade

RETRACTOR TRAY (MIDDLE LEVEL)



810-0400 - RetractorTray (Middle Level)



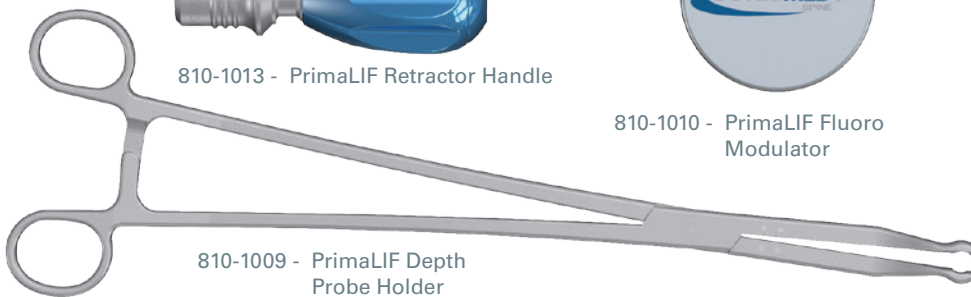
810-1011 - PrimaLIF Dilator Pusher



810-1012 - PrimaLIF Ring Inserter Pusher



810-1013 - PrimaLIF Retractor Handle



810-1009 - PrimaLIF Depth Probe Holder



800-1213 - PrimaLOK FF Driver Shaft - Solid

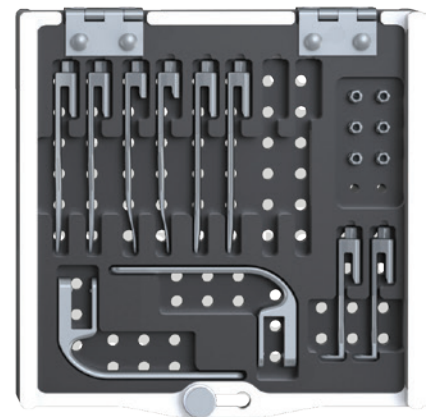


810-4000 - PrimaLIF Disc Shim Holder

Not Currently Available



810-1010 - PrimaLIF Fluoro Modulator



810-0403 - PrimaLIF Retractor Shim Caddy



(2) 810-4001 - PrimaLIF Ring Disc Shim



(2) 810-4002 - PrimaLIF Ring Disc Shim - Curved



(2) 810-4003 - PrimaLIF Ring Disc Shim - Wide



(2) 810-4004 - PrimaLIF Ring L-Bracket Shim



(2) 810-1008 - PrimaLIF Tissue Shim



(2) 810-4005 - PrimaLIF 14mm Body Pin



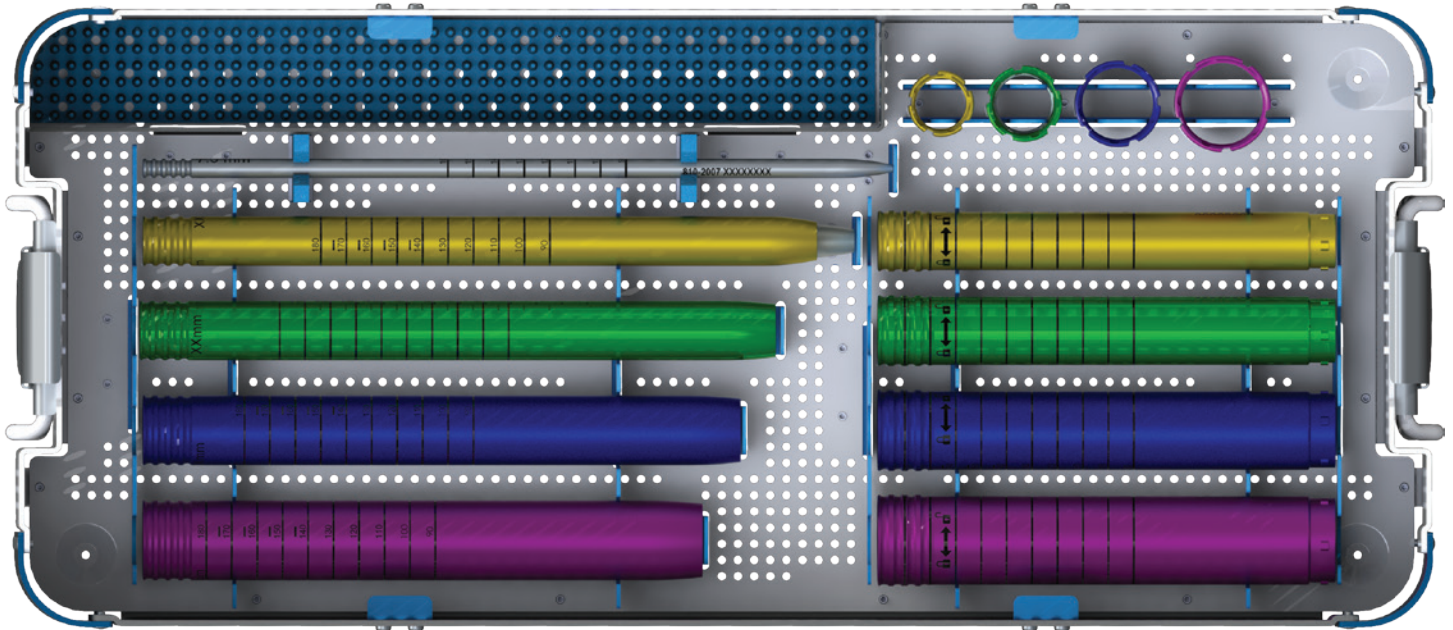
(2) 810-4006 - PrimaLIF 21mm Body Pin



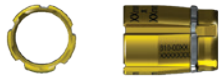
(2) 810-4007 - PrimaLIF 28mm Body Pin

# INSTRUMENTS

## RETRACTOR TRAY (BASE LEVEL), DILATORS AND RING INSERTERS



810-0400 - Retractor Tray (Base Level)



810-0020 - PrimaLIF 20mm x 32 Access Ring



810-0028 - PrimaLIF 28mm x 32 Access Ring



810-0024 - PrimaLIF 24mm x 32 Access Ring



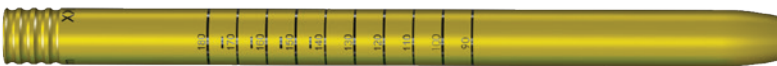
810-0032 - PrimaLIF 32mm x 32 Access Ring



810-2007 - PrimaLIF 7.5mm First Dilator



810-2008 - PrimaLIF 14mm Second Dilator



810-2020 - PrimaLIF 20mm Dilator



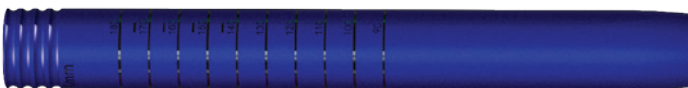
810-3020 - PrimaLIF 20mm Access Ring Inserter



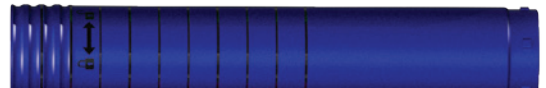
810-2024 - PrimaLIF 24mm Dilator



810-3024 - PrimaLIF 24mm Access Ring Inserter



810-2028 - PrimaLIF 28mm Dilator



810-3028 - PrimaLIF 28mm Access Ring Inserter

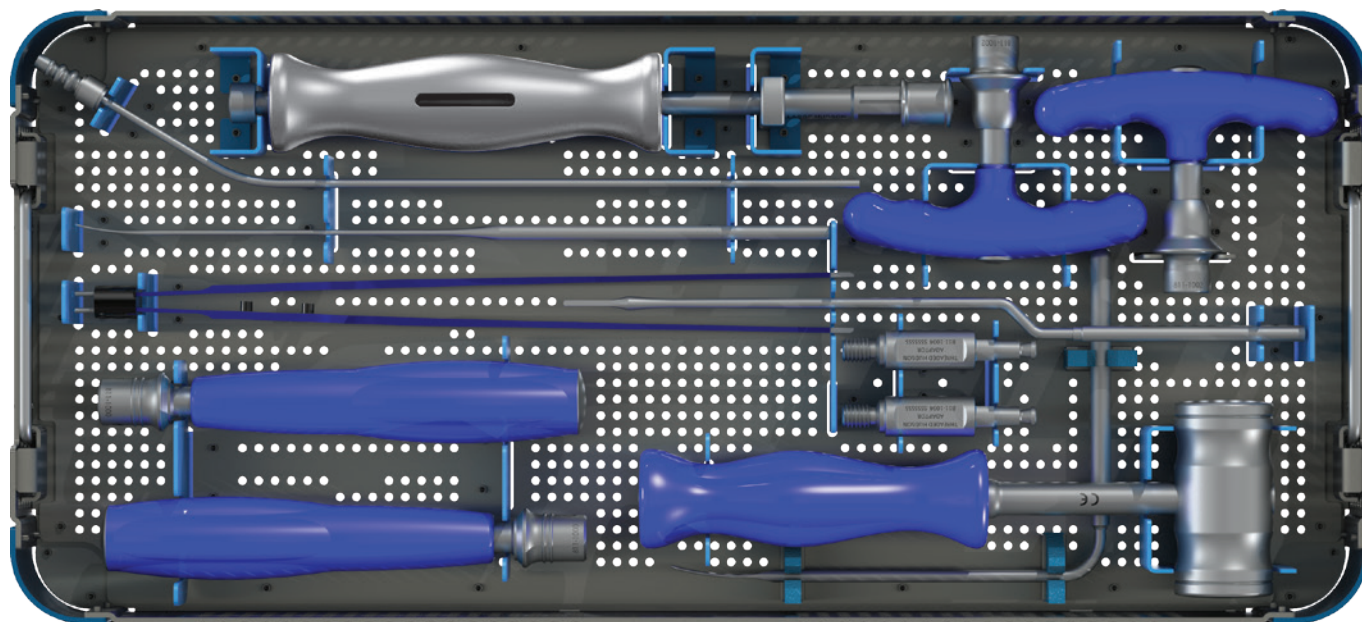


810-2032 - PrimaLIF 32mm Dilator



810-3032 - PrimaLIF 32mm Access Ring Inserter

DISC PREPARATION TRAY 1 (TOP LEVEL)



811-0400 - Disc Preparation Tray 1 (Top Level)



811-1001 - Large Hudson Slap Hammer



811-0012 - 10 FR Suction, Long



811-1006 - 4mm Penfield



811-0011 - Bipolar Forceps, Straight



811-0010 - Annulotomy Knife



811-1002 - Modular Large Hudson T-Handle



(2) 811-1004 - Threaded Hudson Adaptor



811-1000 - Modular Large Hudson Straight Handle

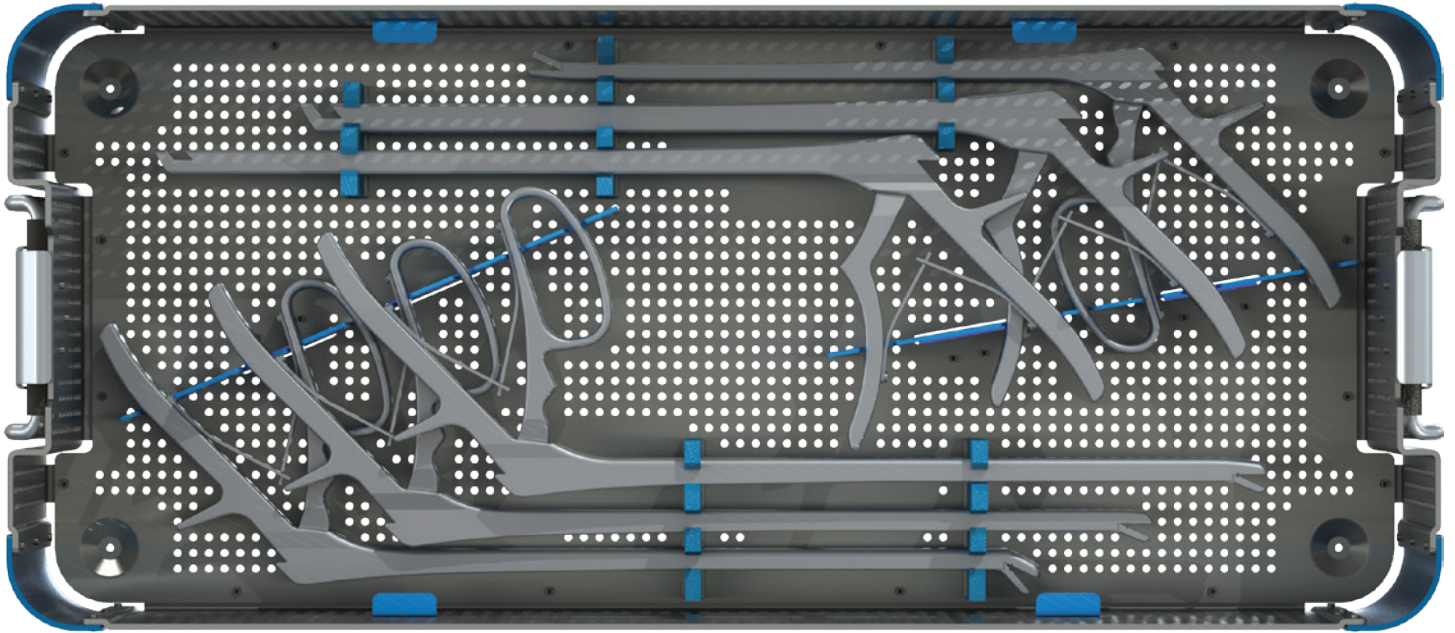


811-1005 - Dual Sided Mallet

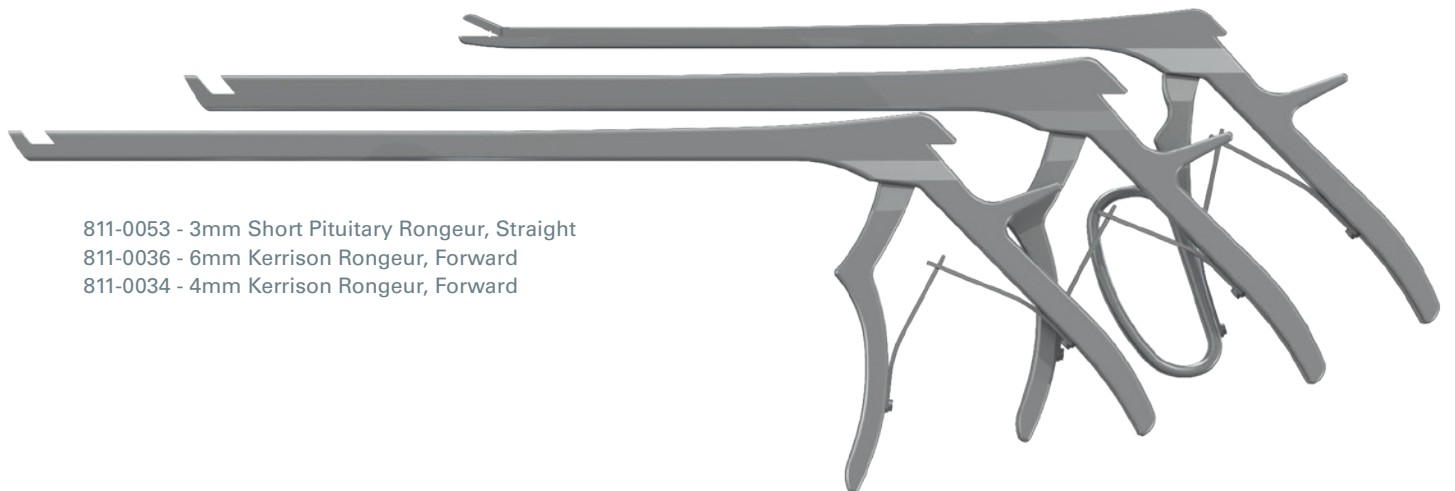
811-0048 - Posterior Nerve Hook

# INSTRUMENTS

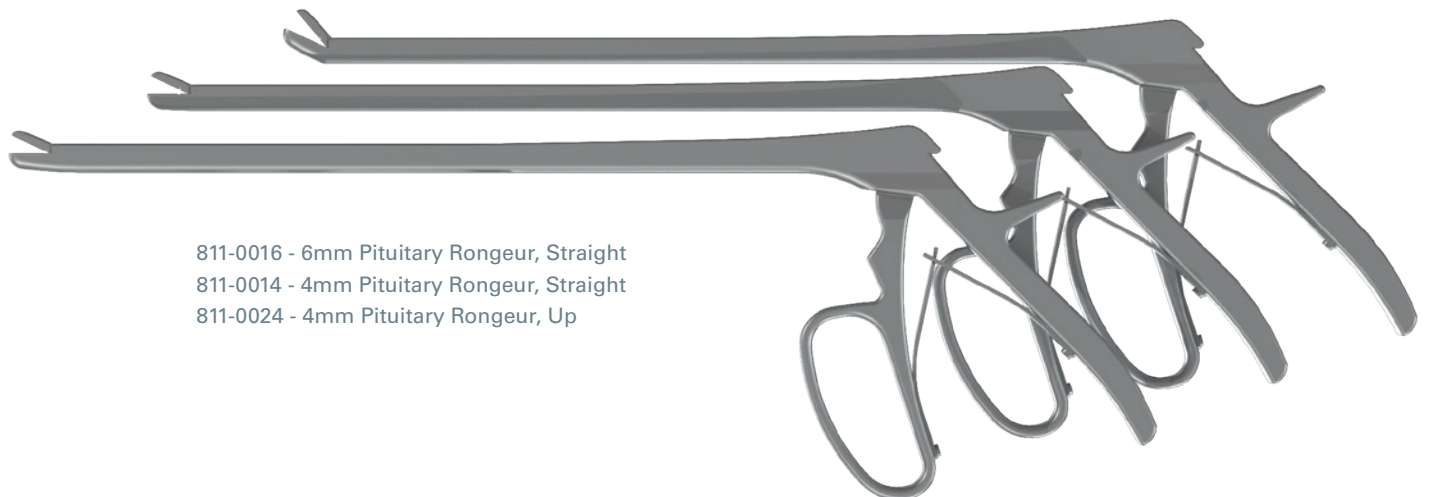
## DISC PREPARATION TRAY 1 (BASE LEVEL)



811-0400 - Disc Preparation Tray 1 (Base Level)



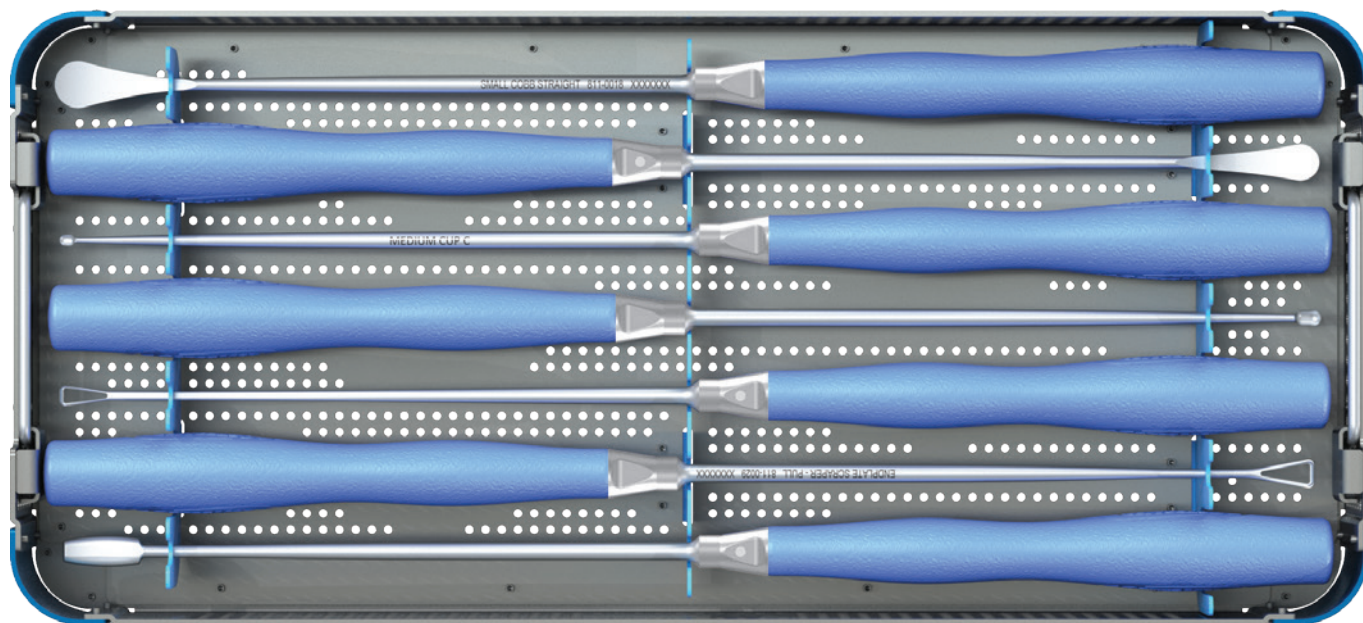
- 811-0053 - 3mm Short Pituitary Rongeur, Straight
- 811-0036 - 6mm Kerrison Rongeur, Forward
- 811-0034 - 4mm Kerrison Rongeur, Forward



- 811-0016 - 6mm Pituitary Rongeur, Straight
- 811-0014 - 4mm Pituitary Rongeur, Straight
- 811-0024 - 4mm Pituitary Rongeur, Up



DISC PREPARATION TRAY 2 (TOP LEVEL)



811-0401 - Disc Preparation Tray 2 (Top Level)



811-0018 - Small Cobb, Straight



811-0041 - 14mm Cobb, Straight



811-0004 - Medium Cup Curette, Straight



811-0007 - Large Cup Curette, Straight



811-0050 - Small Endplate Scraper, Pull



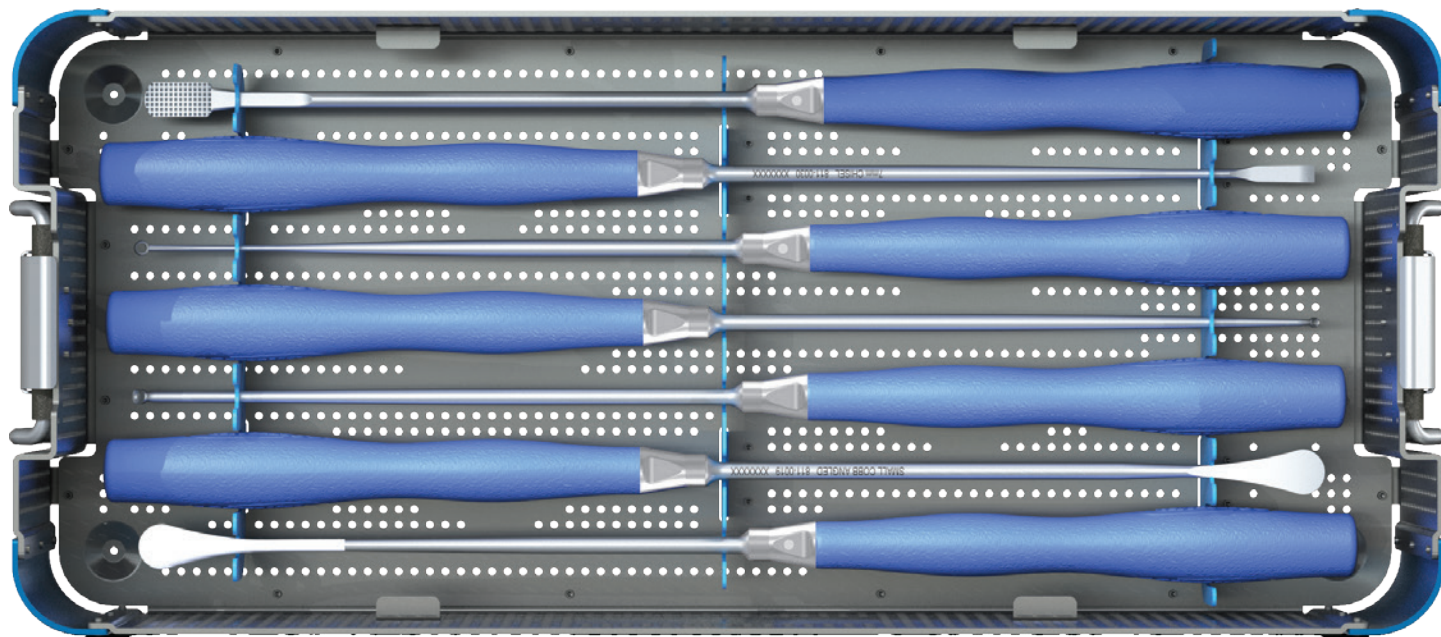
811-0028 - Endplate Scraper, Pull



811-0039 - Curved Rasp

# INSTRUMENTS

## DISC PREPARATION TRAY 2 (BASE LEVEL)



811-0401 - Disc Preparation Tray 2 (Base Level)



811-0040 - Double Sided Rasp



811-0030 - 7mm Chisel



811-0042 - 6mm Ring Curette



811-0006 - Medium Cup Curette, Down



811-0009 - Large Cup Curette, Down

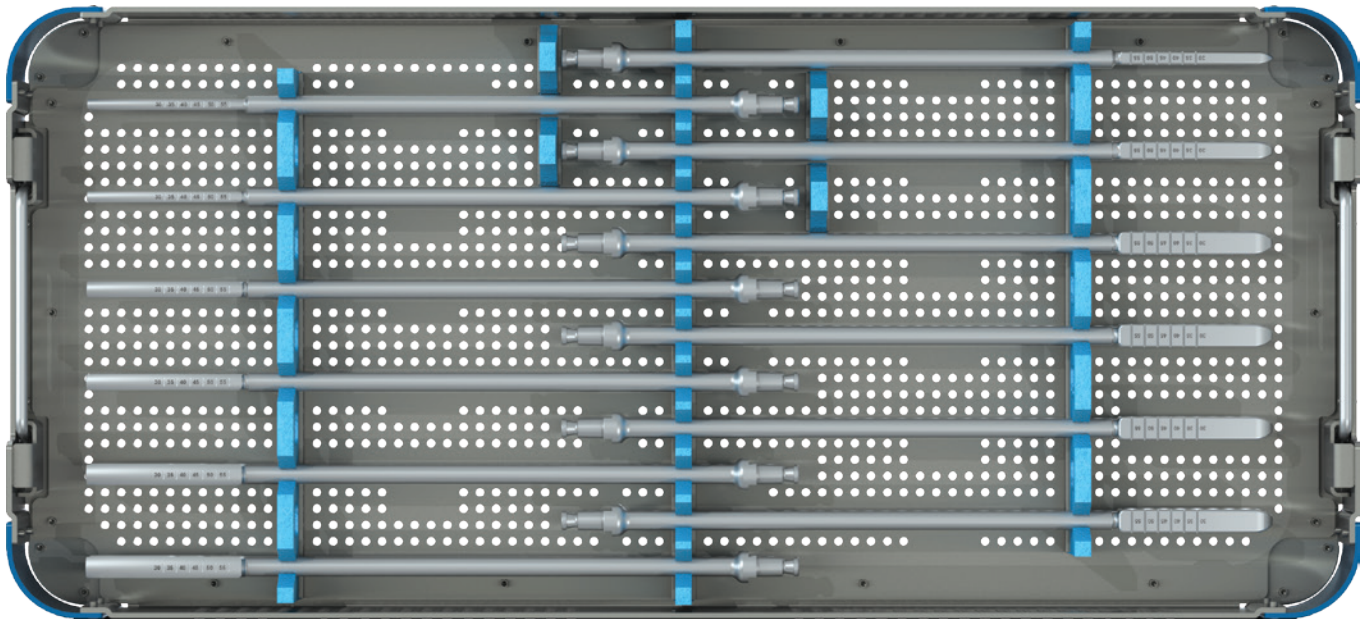


811-0019 - Small Cobb, Angled



811-0049 - Small Cobb, Reverse Angled

DISC PREPARATION TRAY 3 (TOP LEVEL)



811-0402 - Disc Preparation Tray 3 (Top Level)



811-0107 - 7mm Paddle Sizer



811-0207 - 7mm Paddle Shaver



811-0109 - 9mm Paddle Sizer



811-0209 - 9mm Paddle Shaver



811-0111 - 11mm Paddle Sizer



811-0211 - 11mm Paddle Shaver



811-0113 - 13mm Paddle Sizer



811-0213 - 13mm Paddle Shaver



811-0115 - 15mm Paddle Sizer



811-0215 - 15mm Paddle Shaver



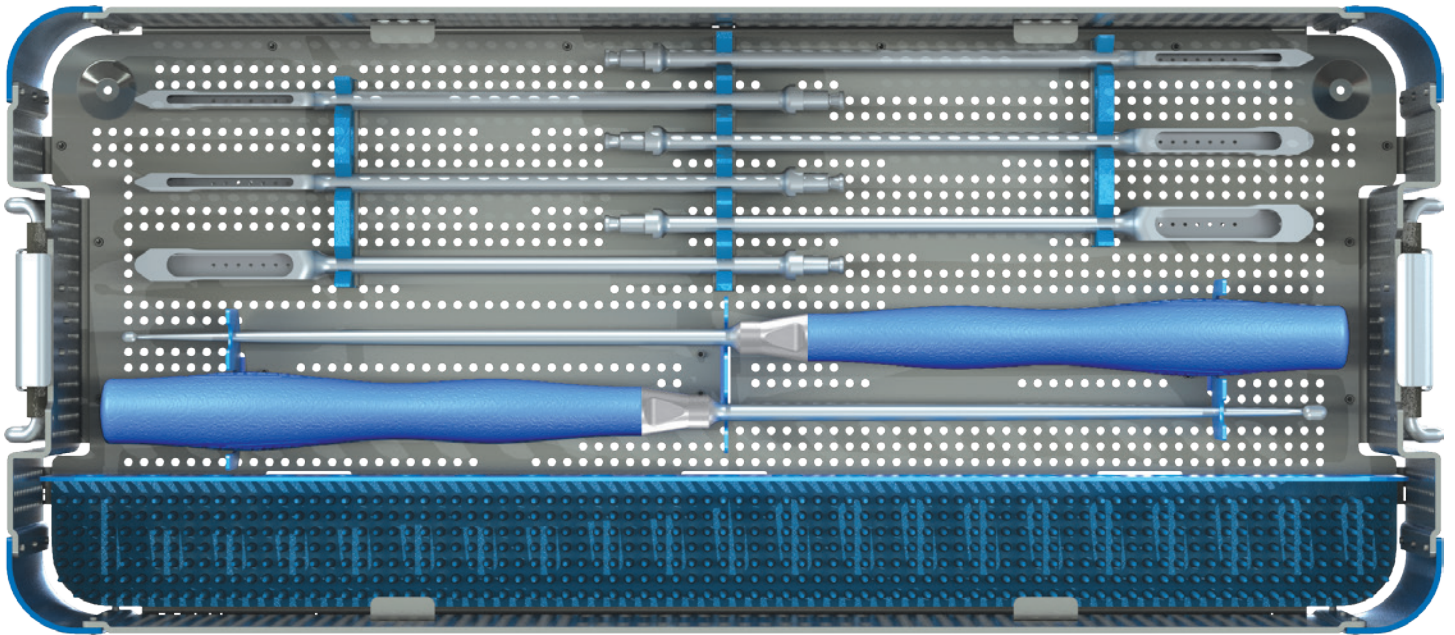
811-0117 - 17mm Paddle Sizer



811-0217 - 17mm Paddle Shaver

# INSTRUMENTS

## DISC PREPARATION TRAY 3 (BASE LEVEL)



811-0402 - Disc Preparation Tray 3 (Base Level)



812-0107 - PrimaLIF LLIF 7mm Box Osteotome



812-0109 - PrimaLIF LLIF 9mm Box Osteotome



812-0111 - PrimaLIF LLIF 11mm Box Osteotome



812-0113 - PrimaLIF LLIF 13mm Box Osteotome



812-0115 - PrimaLIF LLIF 15mm Box Osteotome



812-0117 - PrimaLIF LLIF 17mm Box Osteotome

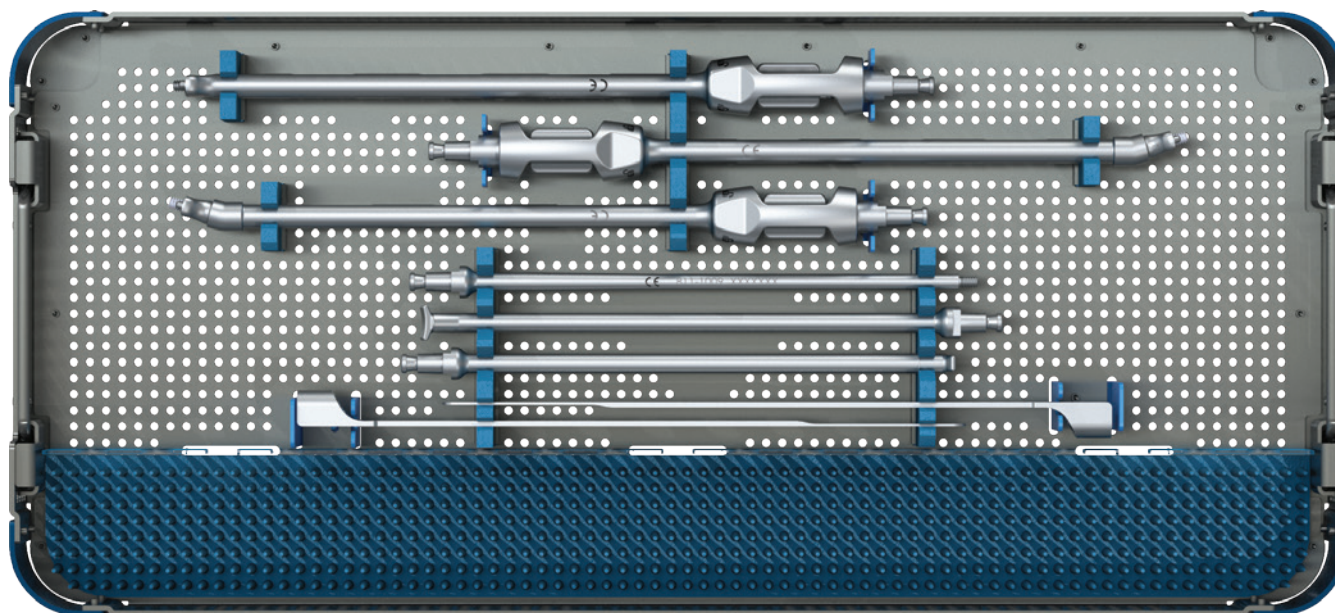


811-0005 - Medium Cup Curette, Up



811-0008 - Large Cup Curette, Up

LATERAL INSTRUMENTS TRAY (TOP LEVEL)



812-0402 - Lateral Instruments Tray (Top Level)



812-1004 - PrimaLIF LLIF Fixed Modular Inserter



812-1002 - PrimaLIF LLIF Angled Modular Inserter - Left



812-1003 - PrimaLIF LLIF Angled Modular Inserter - Right



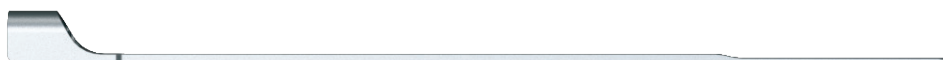
811-1009 - Threaded Removal Shaft



811-1008 - Angled Implant Tamp



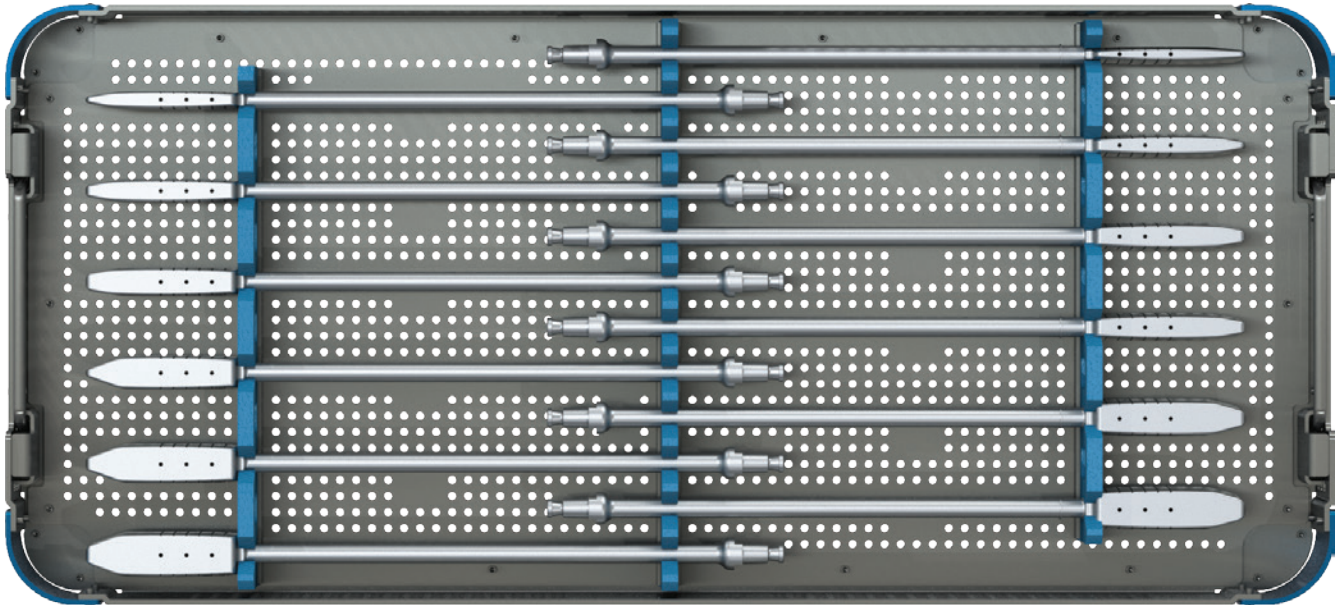
811-1003 - Implant Tamp



(2) 811-1007 - Implant Shim

# INSTRUMENTS

## LATERAL INSTRUMENTSTRAY (MIDDLE LEVEL)



812-0402 - Lateral Instruments Tray (Middle Level)



815-1007 - PrimaLIF LLIF 7mm X 18mm Lordotic Trial



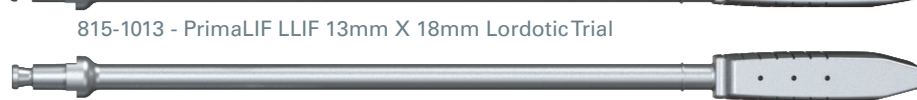
815-1009 - PrimaLIF LLIF 9mm X 18mm Lordotic Trial



815-1011 - PrimaLIF LLIF 11mm X 18mm Lordotic Trial



815-1013 - PrimaLIF LLIF 13mm X 18mm Lordotic Trial



815-1015 - PrimaLIF LLIF 15mm X 18mm Lordotic Trial



815-1017 - PrimaLIF LLIF 17mm X 18mm Lordotic Trial



812-1007 - PrimaLIF LLIF 7mm X 18mm Parallel Trial



812-1009 - PrimaLIF LLIF 9mm X 18mm Parallel Trial



812-1011 - PrimaLIF LLIF 11mm X 18mm Parallel Trial



812-1013 - PrimaLIF LLIF 13mm X 18mm Parallel Trial

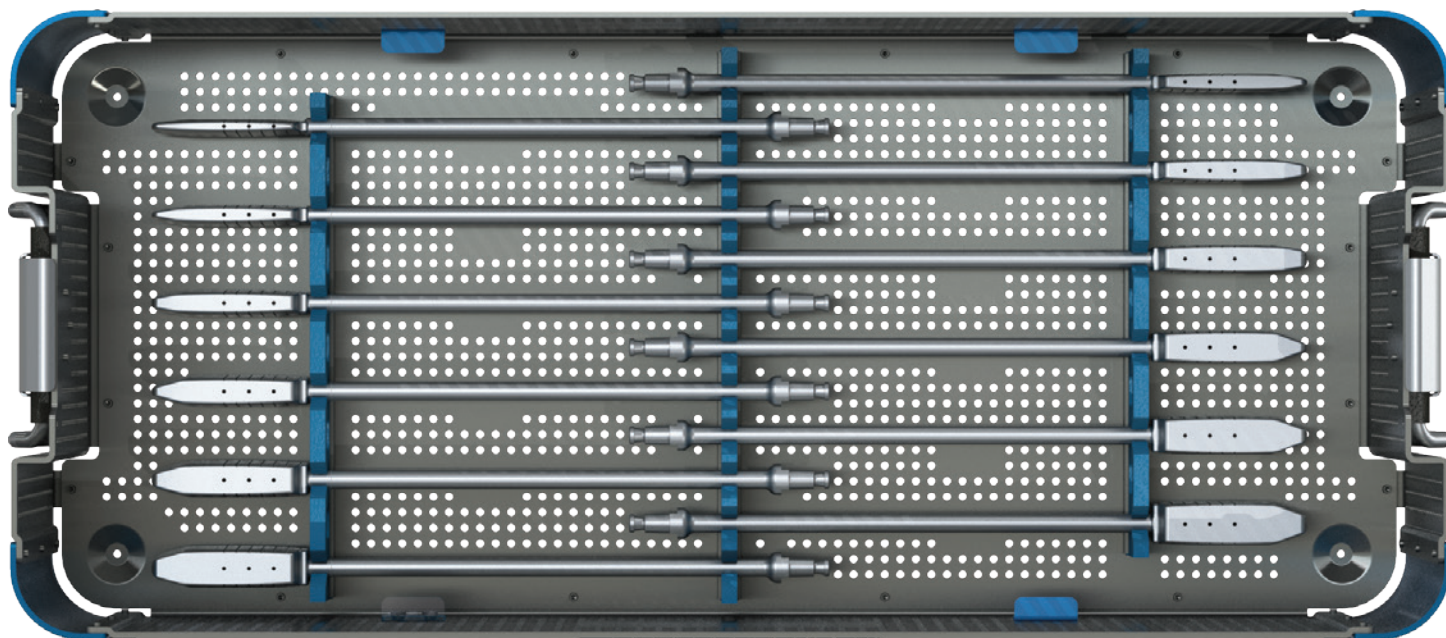


812-1015 - PrimaLIF LLIF 15mm X 18mm Parallel Trial



812-1017 - PrimaLIF LLIF 17mm X 18mm Parallel Trial

LATERAL INSTRUMENTSTRAY (BASE LEVEL)



812-0402 - Lateral Instruments Tray (Base Level)



816-1007 - PrimaLIF LLIF 7mm X 22mm Lordotic Trial



816-1009 - PrimaLIF LLIF 9mm X 22mm Lordotic Trial



816-1011 - PrimaLIF LLIF 11mm X 22mm Lordotic Trial



816-1013 - PrimaLIF LLIF 13mm X 22mm Lordotic Trial



816-1015 - PrimaLIF LLIF 15mm X 22mm Lordotic Trial



816-1017 - PrimaLIF LLIF 17mm X 22mm Lordotic Trial



813-1007 - PrimaLIF LLIF 7mm X 22mm Parallel Trial



813-1009 - PrimaLIF LLIF 9mm X 22mm Parallel Trial



813-1011 - PrimaLIF LLIF 11mm X 22mm Parallel Trial



813-1013 - PrimaLIF LLIF 13mm X 22mm Parallel Trial



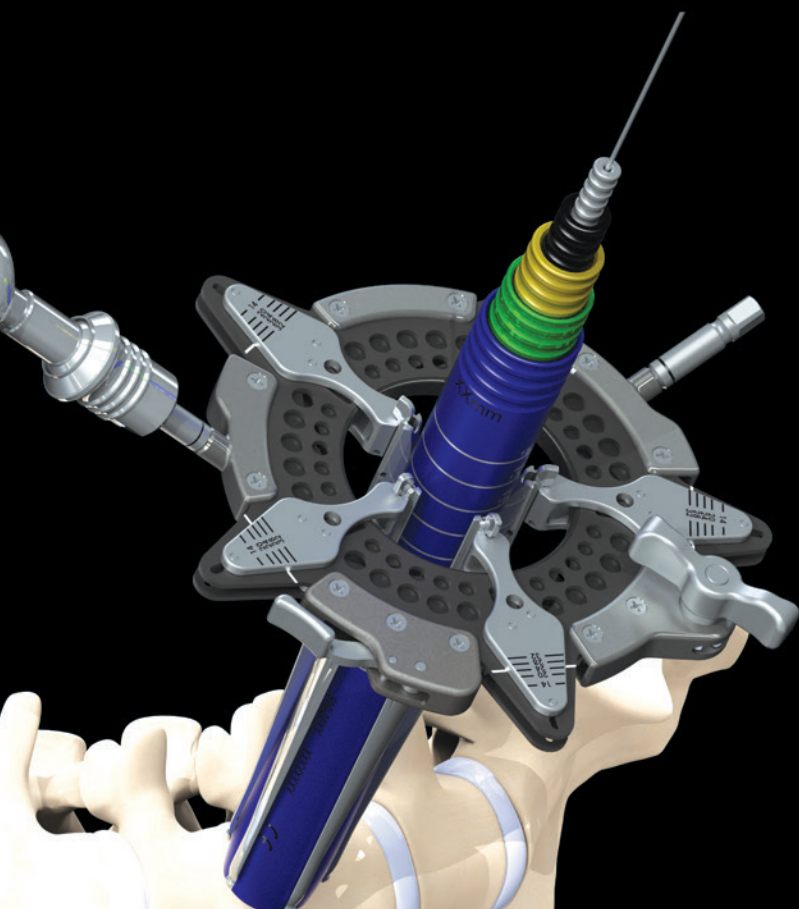
813-1015 - PrimaLIF LLIF 15mm X 22mm Parallel Trial



813-1017 - PrimaLIF LLIF 17mm X 22mm Parallel Trial



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