

# SPOTLIGHT™

## SURGICAL TECHNIQUE: MICRODISCECTOMY



DePuySpine™  
a Johnson & Johnson company

# INTRODUCTION

Lumbar microdiscectomy techniques have changed significantly over the years since Mixter and Barr performed the first discectomy. In recent years there has been an effort across all disciplines of surgery to minimize the incisions in order to achieve less damage to healthy tissue, permitting faster recovery, less hospital stay (and therefore reduced cost), and, usually, less pain for the patient.

Orthopedics and neurosurgery have seen similar efforts over the years including spinal surgery. Use of the microscope has become commonplace, permitting magnification, illumination, and binocular vision. There have been forays into percutaneous discectomy procedures, and, more recently, use of 2-dimensional endoscopes—both rigid and flexible. However, visualization of delicate neuroanatomy on 2-dimensional video monitors, as well as the small working channels with these devices, has limited their acceptance and popularity with many surgeons, as well as the limited types of pathology that can be addressed.

With experience and proper education, surgeons are now pursuing interbody fusions, pedicle fixation, and anterior and posterior cervical and thoracic spinal surgery through tubular retraction ports.

This surgical technique guide describes the new SPOTLIGHT™ Access System that permits 3-dimensional visualization of the spine, either with loupes or microscope. The extraordinary illumination of SPOTLIGHT Retraction Ports provides a shadowless working portal with 5 inner diameter options to perform lumbar discectomy and laminectomy with safety and reliability.



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## SURGICAL TECHNIQUE

### STEP 1

### PATIENT POSITIONING

#### NOTE:

*Any operating room table used for image procedures will suffice, though the Jackson table offers an optimal amount of unrestricted fluoroscopic visualization.*

- Position patient in the prone position. The use of a Wilson frame on top of a Jackson table will assist in achieving the proper position and provide an unrestricted view for imaging.



- On the contralateral side to the planned incision, position the Rigid Arm Clamp on the table rail lateral to the mid or upper thigh to facilitate subsequent placement of the Rigid Arm Assembly.



- Once the surgical preparation and draping are completed, the clamp can attach to the bed rail over the drapes and the Rigid Arm can be attached to the Clamp—the Rigid Arm Assembly can be adjusted within the sterile field.



## STEP 2

## ANATOMICAL LANDMARKS



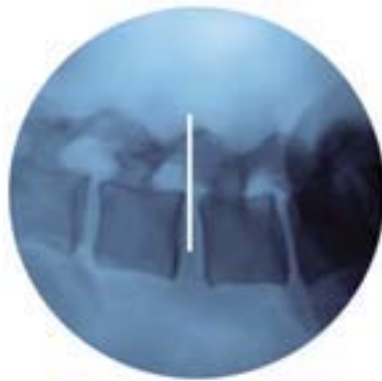
- Dilation of the multifidus and longissimus muscles that run parallel to the spine is the primary objective. Fluoroscopy is used to accurately locate the desired level and close attention is paid to keep the targeted surgical site at the center of the fluoroscopic view. A C-arm with A/P and lateral views provides proper imaging.

## STEP 3

## TARGETING



- An Incision Template is used with fluoroscopic guidance to locate the incision's center over the disc space of the proper level to be operated on. A longitudinal incision slightly larger than the desired port diameter is made, usually through skin only, since the dilators will pierce and dilate the fascia.
- SPOTLIGHT ports are measured by the inner diameter. Incision size should be based on outer diameter. SPOTLIGHT port outer diameters are 4 mm larger than their inner diameters.



## NOTE:

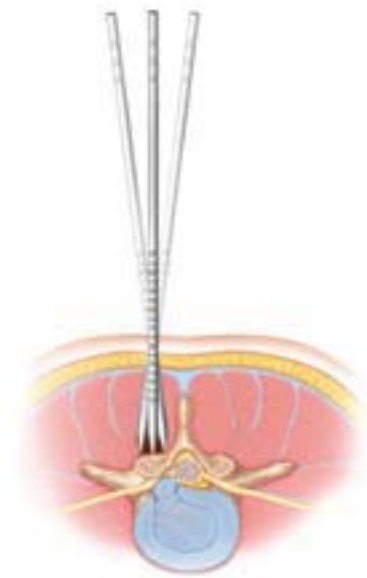
*Proper targeting is very important to maximize ease of surgery and minimize the need to enlarge the incision. For unilateral lumbar discectomy the center of the target is generally the interior edge of the cephalad lamina and the medial border of the facet joint of the desired disc level. This incision can be adjusted cephalad or caudad as necessary to retrieve a sequestered fragment, or positioned lateral to the facet joint for an extraforaminal approach to a far lateral or intraforaminal disc herniation.*

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### STEP 4

### INITIAL DILATION



- Once the incision is made, the First Dilator is inserted into the incision, bluntly piercing the fascia to dilate the paravertebral muscle tissue down to the laminar level.
- The First Dilator's position is confirmed fluoroscopically. With careful tactile sensation, the paravertebral muscles are swept free from the lamina, the base of the spinous process, and over the facet joint with a gentle wand-like motion to facilitate visualization and ensure the subsequent dilators and SPOTLIGHT Retraction Ports are fully seated against the laminar bone.

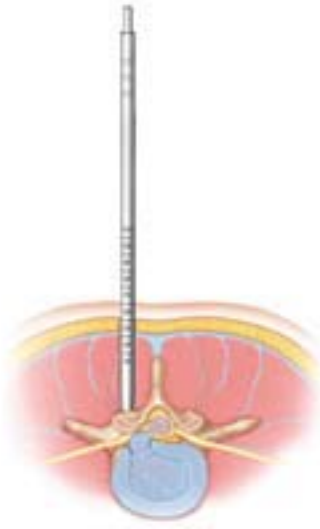
#### NOTE:

*If desired, the fascia can be incised prior to the insertion of the First Dilator.*



## STEP 5

## SERIAL DILATION AND DEPTH MEASUREMENT



- Sequential dilation is performed by passing the next largest dilator over the previously inserted dilator.
- It is recommended that the depth measurement be taken from the Second Dilator as this will be flush to the bone and produce the most accurate measurement. The depth should be taken at the point where the skin contacts the dilator.
- The Third through the Seventh Dilators correspond to the appropriate port diameters (ie, use the Third Dilator for placement of the 12-mm port, Fourth Dilator for placement of 15-mm port, etc).

### NOTE:

*The SPOTLIGHT Retraction Ports also come in an angled configuration to provide an alternative interface between the distal tip of the working port and the patient's lamina.*

### PORT SIZES



Port Diameters

Ports are available in lengths ranging from 30 mm to 110 mm in 10-mm increments.

*Ports are measured by inner diameter.*

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## STEP 6

## SERIAL DILATION (CONT'D)



- Continue sequential dilation until the desired diameter is achieved.
- Ports come in 12 mm, 15 mm, 18 mm, 21 mm, and 24 mm diameters and the selection of these will determine the number of dilation steps required. Dilation steps for the desired SPOTLIGHT Retraction Port diameters are as follows:

12 mm – Dilators 1 through 3

15 mm – Dilators 1 through 4

18 mm – Dilators 1 through 5

21 mm – Dilators 1 through 6

24 mm – Dilators 1 through 7

### NOTE:

*An Introducer can be utilized to insert the dilators. This may be required to overcome the tension of the fascia and to ensure the dilators have reached the laminar level.*





## STEP 7

## PORT INSERTION



- Once final serial dilation is complete and the proper SPOTLIGHT Retraction Port diameter and length have been determined, the SPOTLIGHT Retraction Port can be inserted.
- It is recommended that the surgical assistant hold the Introducer firmly over the dilators to maintain their position against the lamina while the surgeon inserts the SPOTLIGHT Retraction Port to the laminar level.

### NOTE:

*Irrigating the outer surface of the SPOTLIGHT Retraction Port will assist in inserting the device.*

**CAUTION:** *It is important to keep the dilators fully seated on the lamina during the insertion of the SPOTLIGHT Retraction Port to avoid creep of soft tissue underneath the dilators.*

## STEP 8

## RIGID ARM ATTACHMENT



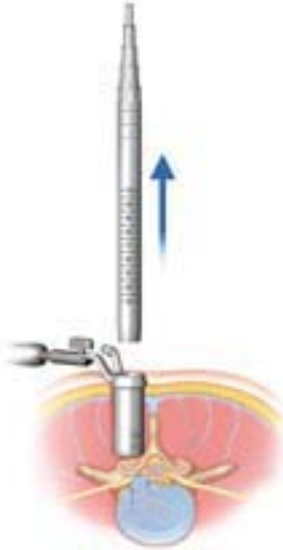
- The Rigid Arm Assembly, which was attached to the surgical table during Step 1, is now connected to the SPOTLIGHT Retraction Port to hold it in place for the remainder of the procedure.
- The Rigid Arm Assembly can be loosened or adjusted at any point during the procedure to allow the SPOTLIGHT Retraction Port to be angled for an alternative field of view and permit exposure of additional portions of the local spinal region.

**CAUTION:** *When attaching or adjusting the Rigid Arm Assembly care should be taken to maintain the SPOTLIGHT Retraction Port's position against the lamina to prevent creep of soft tissue.*

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## SURGICAL TECHNIQUE

### STEP 9 REMOVAL OF THE DILATORS



- Once the SPOTLIGHT Retraction Port has been fully positioned to the laminar level, and the Rigid Arm Assembly has been tightened, the dilators can be removed.
- Care should be taken to ensure the SPOTLIGHT Retraction Port remains fully seated during this step.

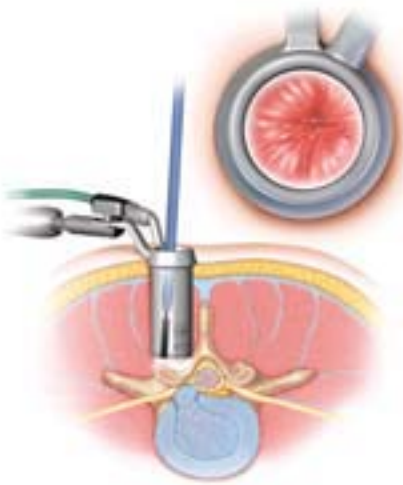
### STEP 10 LIGHT SOURCE ATTACHMENT



- A standard light source with an ACMI connection should be used to illuminate the distal end of the SPOTLIGHT Retraction Port.
- Plug in the ACMI connection to the proximal end of the port, and turn on the power to the light source.
- Patch cable with ACMI connection on one end and universal connection on other end is provided in the set.

**CAUTION:** SPOTLIGHT Retraction Ports operate like other instruments with fiberoptics, such as endoscopes. Care should be taken when flashing these ports. These ports should not be cooled in saline solution immediately after flashing, as the fibers will break and cause damage to the ports.





- Electrocautery can be used to remove any remaining muscle attached to the bone inside the SPOTLIGHT Retraction Port. This prevents bleeding or oozing from the tissues. Gently palpate the bone with an inactive, extended length Bovie tip to ensure that it is against bone and not in the canal. A pituitary rongeur can be used to pluck the tissue fragments out of the exposure. Irrigation can be used routinely to ensure adequate visualization during these maneuvers.

- The lamina, ligamentum flavum, and lateral border of the canal can easily be identified. The spinal canal is entered by dissecting the ligamentum flavum off the caudal edge of the lamina.

- An up-angled curette is ideal to elevate the ligamentum flavum from the lamina and sweep it from midline laterally.



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## STEP 12 HEMILAMINOTOMY



- Until the thecal sac is identified directly, the ligamentum flavum will act as protection to the dura during hemilaminotomy. Then the ligamentum flavum can be resected with 40° or 90° angled Kerrison Rongeurs, which permits proper identification of the disc herniation and allows for appropriate thecal sac and nerve root retraction. If necessary, a high-speed burr can be easily and safely used to remove hypertrophic bone and thin the lamina or medial facet. Special bayonnetted instruments, such as a Penfield 2 mm, can be used to facilitate visualization of the neuroanatomy and disc.
- A paste made from SURGIFOAM™ Absorbable Gelatin Powder is suitable for use as an adjunct for hemostasis in orthospinal procedures when used in accordance with its instructions for use.

### NOTE:

Careful attention to clearing the floor of the spinal canal from epidural vessels with the bipolar electrocautery device prior to incision of the PLL or annulus will decrease bleeding and ensure continued proper visualization. Place only one instrument in the SPOTLIGHT Retraction Port at a time.

Top-down view of final discectomy.



## STEP 13 DISCECTOMY

- Discectomy ensues.



## STEP 14 CLOSING



- The light source can then be switched off and the Rigid Arm Assembly can be loosened and disconnected.
- The SPOTLIGHT Retraction Port can then be removed. A local anesthetic delivered via a spinal needle into the deep muscular tissues around the facet joint, as well as the fascia and subcutaneous tissues, is given under direct visualization while the SPOTLIGHT Retraction Port is removed. This may assist with postoperative discomfort.
- The fascia is closed with a single suture and the skin is closed with subcuticular sutures that minimize local scarring. DERMABOND™ Topical Skin Adhesive is used as an adjunct to sutures to protect the skin closure. A BAND-AID® Brand Adhesive Bandage is the final dressing.

### NOTE:

*An anesthetic mixture of 1% lidocaine and 0.5% MARCAINE® without epinephrine can be used to reduce postoperative incisional pain. Liberally inject the tissues surrounding the dilated region, using a total of about 20 cc.*

### NOTE:

*Connection between light source cable and ACMI connection on port may become warm. Use caution when disconnecting the cable.*

# SPOTLIGHT™

## PRODUCT CODES

CODE	DESCRIPTION	CODE	DESCRIPTION
<b>STRAIGHT PORTS</b>			
2829-12-030	12X30 STRAIGHT PORT	2829-15-100	15X100 STRAIGHT PORT
2829-12-040	12X40 STRAIGHT PORT	2829-15-110	15X110 STRAIGHT PORT
2829-12-050	12X50 STRAIGHT PORT	2829-18-030	18X30 STRAIGHT PORT
2829-12-060	12X60 STRAIGHT PORT	2829-18-040	18X40 STRAIGHT PORT
2829-12-070	12X70 STRAIGHT PORT	2829-18-050	18X50 STRAIGHT PORT
2829-12-080	12X80 STRAIGHT PORT	2829-18-060	18X60 STRAIGHT PORT
2829-12-090	12X90 STRAIGHT PORT	2829-18-070	18X70 STRAIGHT PORT
2829-12-100	12X100 STRAIGHT PORT	2829-18-080	18X80 STRAIGHT PORT
2829-12-110	12X110 STRAIGHT PORT	2829-18-090	18X90 STRAIGHT PORT
2829-15-030	15X30 STRAIGHT PORT	2829-18-100	18X100 STRAIGHT PORT
2829-15-040	15X40 STRAIGHT PORT	2829-18-110	18X110 STRAIGHT PORT
2829-15-050	15X50 STRAIGHT PORT	2829-21-030	21X30 STRAIGHT PORT
2829-15-060	15X60 STRAIGHT PORT	2829-21-040	21X40 STRAIGHT PORT
2829-15-070	15X70 STRAIGHT PORT	2829-21-050	21X50 STRAIGHT PORT
2829-15-080	15X80 STRAIGHT PORT	2829-21-060	21X60 STRAIGHT PORT
2829-15-090	15X90 STRAIGHT PORT	2829-21-070	21X70 STRAIGHT PORT



CODE	DESCRIPTION	CODE	DESCRIPTION
<b>STRAIGHT PORTS</b>			
2829-21-080	21X80 STRAIGHT PORT	2829-24-060	24X60 STRAIGHT PORT
2829-21-090	21X90 STRAIGHT PORT	2829-24-070	24X70 STRAIGHT PORT
2829-21-100	21X100 STRAIGHT PORT	2829-24-080	24X80 STRAIGHT PORT
2829-21-110	21X110 STRAIGHT PORT	2829-24-090	24X90 STRAIGHT PORT
2829-24-030	24X30 STRAIGHT PORT	2829-24-100	24X100 STRAIGHT PORT
2829-24-040	24X40 STRAIGHT PORT	2829-24-110	24X110 STRAIGHT PORT
2829-24-050	24X50 STRAIGHT PORT		

<b>ANATOMIC PORTS</b>			
2829-12-530	12X30 ANATOMIC PORT	2829-15-580	15X80 ANATOMIC PORT
2829-12-540	12X40 ANATOMIC PORT	2829-15-590	15X90 ANATOMIC PORT
2829-12-550	12X50 ANATOMIC PORT	2829-15-600	15X100 ANATOMIC PORT
2829-12-560	12X60 ANATOMIC PORT	2829-15-610	15X110 ANATOMIC PORT
2829-12-570	12X70 ANATOMIC PORT	2829-18-530	18X30 ANATOMIC PORT
2829-12-580	12X80 ANATOMIC PORT	2829-18-540	18X40 ANATOMIC PORT
2829-12-590	12X90 ANATOMIC PORT	2829-18-550	18X50 ANATOMIC PORT
2829-12-600	12X100 ANATOMIC PORT	2829-18-560	18X60 ANATOMIC PORT
2829-12-610	12X110 ANATOMIC PORT	2829-18-570	18X70 ANATOMIC PORT
2829-15-530	15X30 ANATOMIC PORT	2829-18-580	18X80 ANATOMIC PORT
2829-15-540	15X40 ANATOMIC PORT	2829-18-590	18X90 ANATOMIC PORT
2829-15-550	15X50 ANATOMIC PORT	2829-18-600	18X100 ANATOMIC PORT
2829-15-560	15X60 ANATOMIC PORT	2829-18-610	18X110 ANATOMIC PORT
2829-15-570	15X70 ANATOMIC PORT		

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## PRODUCT CODES

CODE	DESCRIPTION	CODE	DESCRIPTION
<b>ANATOMIC PORTS</b>			
2829-21-530	21X30 ANATOMIC PORT	2829-24-530	24X30 ANATOMIC PORT
2829-21-540	21X40 ANATOMIC PORT	2829-24-540	24X40 ANATOMIC PORT
2829-21-550	21X50 ANATOMIC PORT	2829-24-550	24X50 ANATOMIC PORT
2829-21-560	21X60 ANATOMIC PORT	2829-24-560	24X60 ANATOMIC PORT
2829-21-570	21X70 ANATOMIC PORT	2829-24-570	24X70 ANATOMIC PORT
2829-21-580	21X80 ANATOMIC PORT	2829-24-580	24X80 ANATOMIC PORT
2829-21-590	21X90 ANATOMIC PORT	2829-24-590	24X90 ANATOMIC PORT
2829-21-600	21X100 ANATOMIC PORT	2829-24-600	24X100 ANATOMIC PORT
2829-21-610	21X110 ANATOMIC PORT	2829-24-610	24X110 ANATOMIC PORT
<b>SUPPORTING INSTRUMENTS</b>			
2882-01-004	INCISION TEMPLATE	2929-00-006	6TH DILATOR, 21 MM
2929-00-001	1ST DILATOR	2929-00-007	7TH DILATOR, 24 MM
2929-00-002	2ND DILATOR	2929-00-008	INTRODUCER
2929-00-003	3RD DILATOR, 12 MM	2929-00-009	MANUAL WANDING HANDLE
2929-00-004	4TH DILATOR, 15 MM	2929-00-600	RIGID ARM
2929-00-005	5TH DILATOR, 18 MM	2929-00-610	CLAMP





CODE	DESCRIPTION	CODE	DESCRIPTION
<b>FORCEPS</b>			
81622301	STRAIGHT BIPOLAR FORCEPS, 1 MM	81622341	DOWN-ANGLED BIPOLAR FORCEPS, 1 MM
81622331	UP-ANGLED BIPOLAR FORCEPS, 1 MM	2929-01-004	TISSUE FORCEPS
<b>KERRISON RONGEURS</b>			
2929-02-140	1 MM KERRISON RONGEUR, 40°	2929-02-190	1 MM KERRISON RONGEUR, 90°
2929-02-240	2 MM KERRISON RONGEUR, 40°	2929-02-290	2 MM KERRISON RONGEUR, 90°
2929-02-340	3 MM KERRISON RONGEUR, 40°	2929-02-390	3 MM KERRISON RONGEUR, 90°
2929-02-440	4 MM KERRISON RONGEUR, 40°	2929-02-490	4 MM KERRISON RONGEUR, 90°
<b>STRAIGHT CURETTES</b>			
2929-03-201	2 MM STRAIGHT CURETTE	2929-03-401	4 MM STRAIGHT CURETTE
2929-03-301	3 MM STRAIGHT CURETTE		
<b>REVERSE CURETTES</b>			
2929-03-202	2 MM REVERSE CURETTE	2929-03-402	4 MM REVERSE CURETTE
2929-03-302	3 MM REVERSE CURETTE		
<b>UP-ANGLED CURETTES</b>			
2929-03-203	2 MM UP-ANGLED CURETTE	2929-03-403	4 MM UP-ANGLED CURETTE
2929-03-303	3 MM UP-ANGLED CURETTE		
<b>DOWN-BITING CURETTES</b>			
2929-03-204	2 MM DOWN-BITING CURETTE	2929-03-404	4 MM DOWN-BITING CURETTE
2929-03-304	3 MM DOWN-BITING CURETTE		
<b>DOWN-ANGLED CURETTES</b>			
2929-03-205	2 MM DOWN-ANGLED CURETTE	2929-03-405	4 MM DOWN-ANGLED CURETTE
2929-03-305	3 MM DOWN-ANGLED CURETTE		

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## PRODUCT CODES

CODE	DESCRIPTION	CODE	DESCRIPTION
<b>MICROPITUITARIES</b>			
2929-04-201	2 MM STRAIGHT MICROPITUITARY	2929-04-203	2 MM DOWN-ANGLED MICROPITUITARY, 45°
2929-04-202	2 MM UP-ANGLED MICROPITUITARY, 45°		
<b>PITUITARIES</b>			
2929-04-401	4 MM STRAIGHT PITUITARY	2929-04-403	4 MM DOWN-ANGLED PITUITARY, 45°
2929-04-402	4 MM UP-ANGLED PITUITARY, 45°		
<b>PENFIELDS</b>			
2929-05-101	1 MM PENFIELD, PUSH	2929-05-102	1 MM PENFIELD, PULL
2929-05-201	2 MM PENFIELD, PUSH	2929-05-202	2 MM PENFIELD, PULL
2929-05-301	3 MM PENFIELD, PUSH	2929-05-302	3 MM PENFIELD, PULL
<b>WOODSONS</b>			
2929-05-460	WOODSON, 60°	2929-05-490	WOODSON, 90°



CODE	DESCRIPTION	CODE	DESCRIPTION
<b>NERVE HOOKS</b>			
2929-06-001	MICRO TIP NERVE HOOK, FORWARD	2929-06-004	MICRO TIP NERVE HOOK, RIGHT
2929-06-002	MICRO TIP NERVE HOOK, REVERSE	2929-06-005	BALL TIP NERVE HOOK, 5 MM
2929-06-003	MICRO TIP NERVE HOOK, LEFT		
<b>NERVE ROOT RETRACTORS</b>			
2929-07-500	NERVE ROOT RETRACTOR, 5 MM RIBBON	2929-07-510	NERVE ROOT RETRACTOR, 5 MM RIGID
<b>SUCTION TUBES *</b>			
2929-08-009	9 FRENCH SUCTION TUBE	2929-08-109	9 FRENCH SUCTION TUBE RETRACTOR
2929-08-011	11 FRENCH SUCTION TUBE	2929-08-111	11 FRENCH SUCTION TUBE RETRACTOR
2929-08-000	REPLACEMENT STYLETS		
*All suction tubes include 1 stylet.			
<b>BAYONETTED SCALPEL HOLDER</b>			
2929-09-001	BAYONETTED SCALPEL HOLDER		

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## PRODUCT CODES

CODE	DESCRIPTION	CODE	DESCRIPTION
<b>MICROSCISSORS</b>			
2929-10-001	MICROSCISSORS		
<b>COBB ELEVATOR</b>			
2929-11-101	12.7 MM COBB ELEVATOR		
<b>CASES AND TRAYS</b>			
2929-00-500	MICRODISCECTOMY INST. CASE #1	2929-00-650	RIGID ARM CASE
2929-00-505	Case #1, Tray #1	2929-00-700	4-LEVEL PORT CASE (accommodates 4 half trays)
2929-00-510	Case #1, Tray #2	2929-00-900	3-LEVEL PORT CASE (accommodates 3 half trays)
2929-00-550	MICRODISCECTOMY INST. CASE #2	2929-00-800	2-LEVEL PORT CASE (accommodates 2 half trays)
2929-00-555	Case #2, Tray #1	2929-00-850	SUPPORTING INST. HALF TRAY
2929-00-560	Case #2, Tray #2	2929-12-850	12 MM HALF TRAY
2929-00-565	Case #2, Tray #2	2929-15-850	15 MM HALF TRAY
		2929-18-850	18 MM HALF TRAY
		2929-21-850	21 MM HALF TRAY
		2929-24-850	24 MM HALF TRAY



## INDICATIONS

The SPOTLIGHT™ Access System is intended to provide the surgeon with minimally invasive surgical access to the spine by ensuring the placement/positioning of the port, down to the lamina, with its attachment to a rigid arm to provide a self-locking method of access to the spinal site that can be visualized using a microscope or loupes, and through which surgical instruments can be manipulated.

**LIMITED WARRANTY AND DISCLAIMER:** DePuy Spine products are sold with a limited warranty to the original purchaser against defects in workmanship and materials. Any other express or implied warranties, including warranties of merchantability or fitness, are hereby disclaimed.

**WARNING:** In the USA, this product has labeling limitations. See package insert for complete information.

**CAUTION:** US law restricts these devices to sale by or on the order of a physician.

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