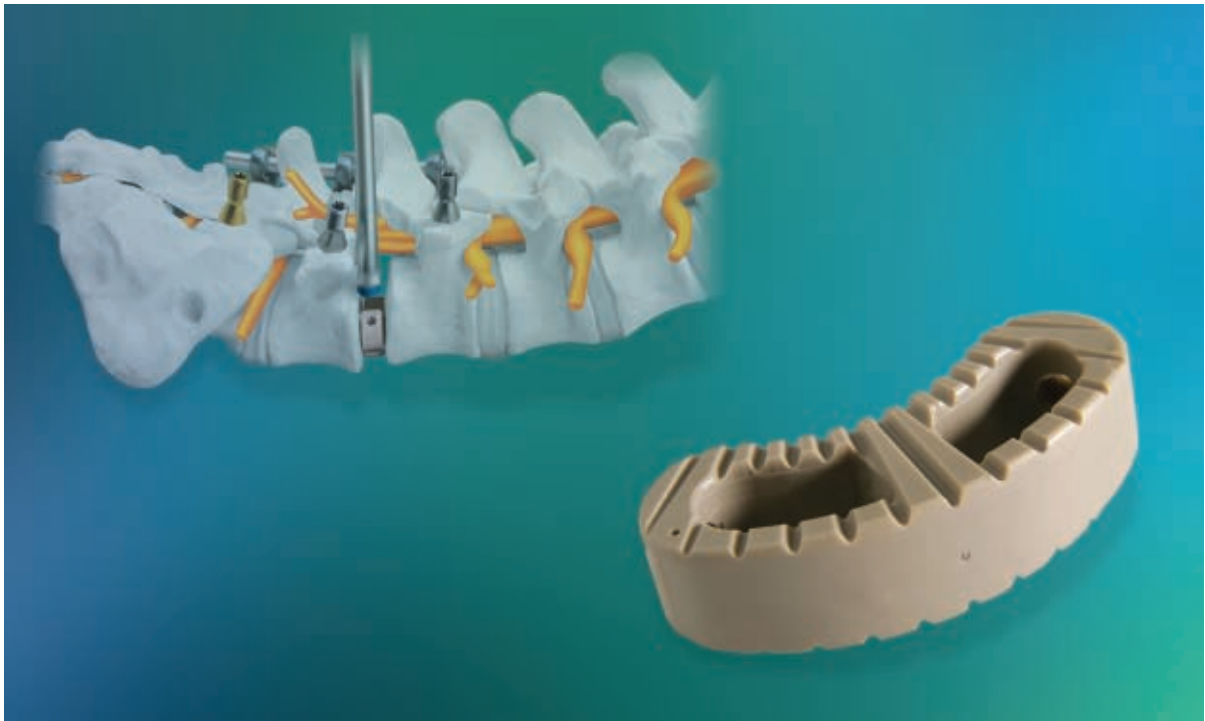


# *NEOLIF<sup>®</sup> TLIF*

## *Surgical Technique*



## ***Contents***

Introduction .....	Page 1
Features And Benefits .....	Page 1
Surgical Technique.....	Page 2
Facet Joint Removal .....	Page 3
Disc Removal .....	Page 4
Implant Insertion .....	Page 6
Final Compression.....	Page 8
Ordering Information .....	Page 9
Further Information.....	Page 10



## Introduction

### NEOLIF® TLIF

Transforaminal Intersomatic Lumbar Cage

A system designed to meet the clinical challenges of transforaminal lumbar interbody fusion surgery by offering a unique device, the **NEOLIF** Transforaminal Lumbar Cage, preserving the posterior arch, the integrity of posterior ligaments and their stability.

### NEOLIF

Transforaminal Implant



## Features And Benefits

- Kidney Or Banana-Shaped: Anatomical Cage
- Made Of PEEK-OPTIMA® Polymer: Compatible With MRI
- Tantalum X-ray Markers Incorporated For 3D Positioning And Post-Operative Assessment
- Large Implant Surface Area For Optimal End Plate Control
- Upper And Lower Serrated Contact Surface
- Large Vertical Windows To Maximize Bone Graft Growth
- Unilateral Transforaminal Or **Extraforaminal** Approach
- Restoration Of The Intervertebral Disc Height
- Excellent Primary Stability
- Height Sizes 8, 10, 12, 14mm, Lordotic Angle 4°, Length 35mm
- Simple And Intuitive Instruments
- Sterile Package
- Compatible With The PLIF Instruments (Upper Tray)

**PEEK-OPTIMA** is a trademark of Invibio. Ltd.

## Surgical Technique

1. To access the L4/L5 disc space, the patient is positioned in a prone position, and a midline incision is made under general anesthesia. (Fig. 1).

2. Subperiosteal dissection of the musculature is carried out from the spinous processes. The musculature and periosteum are carefully retracted in the region of the segment to be fused.

It is strongly recommended to insert pedicle screws and perform a slight distraction prior to the discectomy and insertion of the **NEOLIF** TLIF cage. In this case, the insertion points in the pedicle are identified and the screws are positioned as indicated in the appropriate surgical technique. (Fig. 2, Fig. 3).

(Screws shown in this brochure are Biomet Omega21™ Low Profile pedicular screws which are not available for sale in the USA).

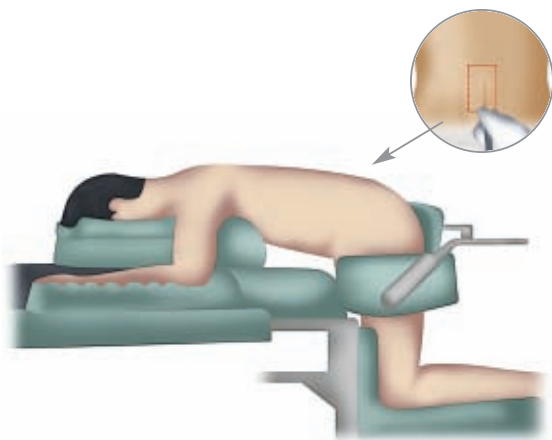


Fig. 1

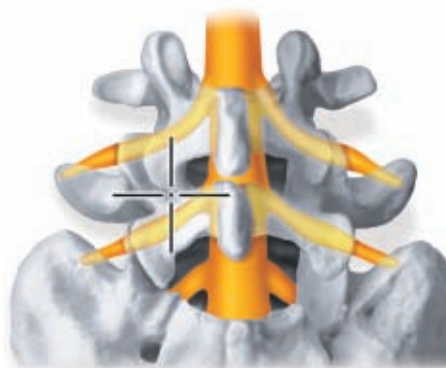


Fig. 2



Fig. 3

**New In This Step:**



**Biomet Omega21** Pedicle Screw

**Facet Joint Removal**

3. (Standard Facetectomy at L5/S1 Level) In order to secure transforaminal access to the disc space, a unilateral mastectomy is performed. The ligamentum flavum is sectioned from the anterior surface off the lamina with a reamer. The inferior articular process of L5 is sectioned with a straight osteotome or angles TLIF chisel and a 4.0mm foramenotomy straight punch. This will expose the capsular portion of the ligamentum flavum, which is to be resected. The superior articular process of S1 is then sectioned. The angles TLIF chisel can be used to expose the intervertebral foramen.
  
4. The pedicle of S1 is exposed to access the disc space of L5/S1. Careful **hemostasia** is performed, observing the efferent nerve and lateral portion of the dural sac. Using a dissector, perform a rectangular **nucleotomy** to open a window towards the disc space. (Fig. 4-5-6).

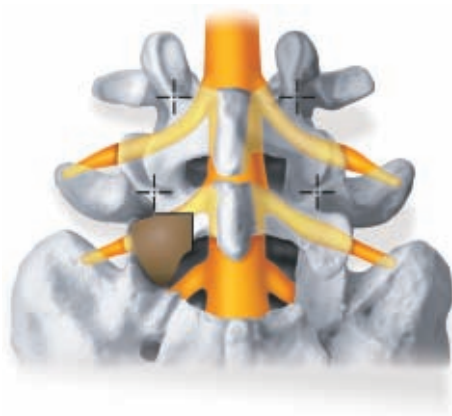


Fig. 4



Fig. 5

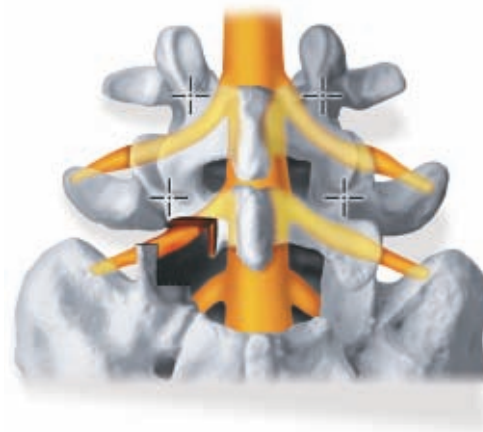


Fig. 6

**New In This Step:**



Angles Chisel (Ref. 2261-02)

## *Surgical Technique (Continued)*

### **Disc Removal**

5. It is necessary to carry out an initial separation of the disc space to gain access to the disc and to allow complete discectomy. This can be achieved by introducing the smallest spreader-curette of 7.0mm in the horizontal position within the collapsed disc space, with a 90° counterclockwise rotation.

The insertion of the spreader-curette can be made easier if a previous distraction is made on the pedicular screws or by separating the spinous processes with a specific distractor.

**NOTE:** For disc space distraction, the spreader-curette is rotated counterclockwise. For shaving small amount of disc material away from the endplates, the spreader-curette is rotated clockwise.

6. A complete discectomy is performed, using a combination of curettes and reamers (Fig. 7 and 8):
- Straight **Brun** Curette 30cm
  - Angled **Scoville** Curette 30cm
  - Angled Rasp
  - 4.0mm Curved **Ferris** Smith Forceps

Optional instruments:

- Straight Ring Curette #6
- Angled Ring Curette #6
- 4.0mm Straight Ferris Smith Forceps
- Reamers

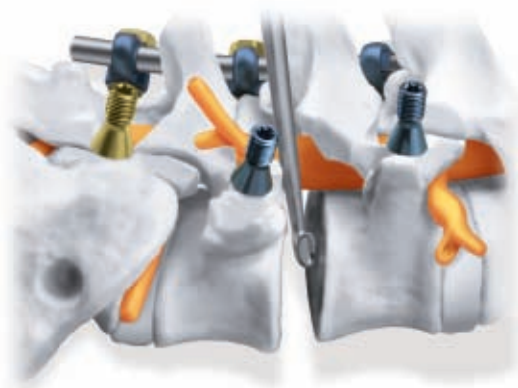


Fig. 7

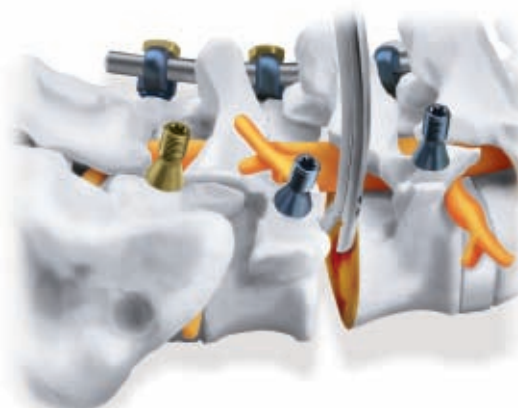


Fig. 8

### **New In This Step:**



Spreader – Curette 7.0mm (Ref. 2260-30)

7. An angled file and a 4.0mm curved Ferris Smith forceps are used to extract all the disc fragments and cartilage attached to the endplates. The chisel (Fig. 9) can be used to resect the anterior lip of the superior and inferior endplates.
8. Additional separation of the disc space can be achieved before inserting the **NEOLIF** TLIF Cage by using a range of spreader-curettes in sequential manner until the required annular tension is achieved (see table on page 8). (Fig. 10).

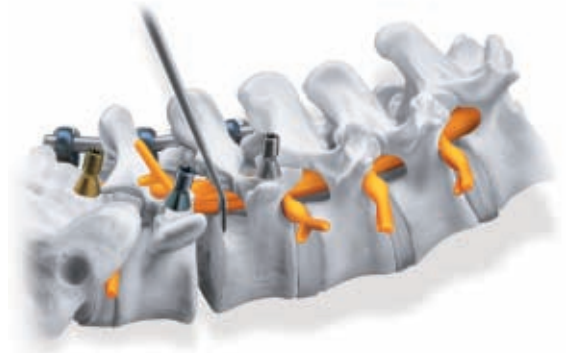


Fig. 9



Fig. 10

**New In This Step:**



**NEOLIF** Angled File 7.0mm (ref. 2260-68)

## *Surgical Technique (Continued)*

### **Implant Insertion**

9. To maximize bone fusion, it is advisable to work the more anterior portion of the vertebral surface with a chisel, and expose the cancellous bone. Damage to the central portion where the implant is supported should be avoided. The disc space is to be filled with as much bone graft material as possible. It is recommended to fill the anterior third and contralateral side of the disc space with bone graft material using the straight and angled impactors. It is also possible to use the optional straight graft impactor, anterior graft impactor and in situ parallel compactor.

A **NEOLIF** trial cage can be used before implant insertion, to check the implant size and disc height required. (Fig. 11).

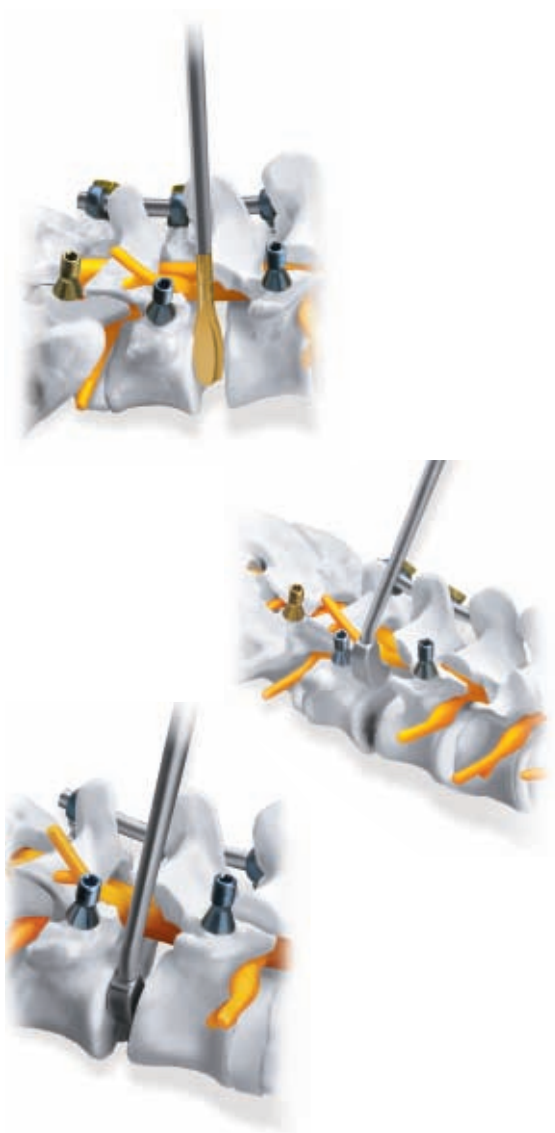


Fig. 11

10. The implant is loaded into the TLIF inserter (Fig. 12).

Previously filled with bone graft material, using the graft table and the table graft compactor. Once implant is filled with bone graft material it may be loaded on the TLIF Inserter. Then, the implant is inserted into the disc space, ideally in a midline anterior position. A gentle distraction through the pedicle screws may help during the initial implant insertion. **NEOLIF** TLIF placement can be verified under fluoroscopy thanks to the X-ray markers.



Fig. 12

**New In This Step:**



TLIF Graft Table (Ref. 2261-05)

## ***Surgical Technique (Continued)***

11. Following **NEOLIF** TLIF implant placement, the inserter is removed. The straight and/or curved TLIF impactor (ref. 2261-16 and ref. 2261-18 respectively) are used to correct implant positioning and place it into its definitive place (Fig. 13).

12. Confirm the final position of the **NEOLIF** TLIF implant via radiographic image (refer to the tantalum marker beads enclosed within the implant) (Fig. 14).

### **Final Compression**

13. Selection is then made of the adequate rod length, followed by assembly with the pedicular screws. With the cranial screws loosened, the compressor is used for final compression, followed by complete locking of the fixation system according to the specific surgical technique.



Fig. 13

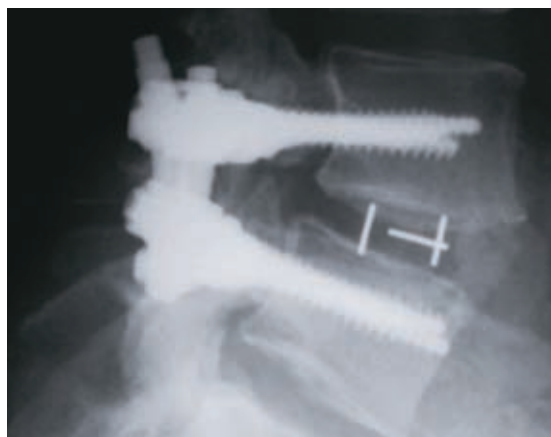


Fig. 14

### **New In This Step:**



Curved Impactor (Ref. 2261-18)

## Ordering Information

### Implants

Catalog #	Description
1262-09	NEOLIF TLIF 7.0mm
1262-10	NEOLIF TLIF 8.0mm
1262-12	NEOLIF TLIF 10mm
1262-14	NEOLIF TLIF 12mm
1262-16	NEOLIF TLIF 14mm

### Instruments

Catalog #	Description	Qty
2281-02	NEOLIF TLIF Instrument Set	

### Includes:

229892IQL	NEOLIF TLIF Empty Case	1
-----------	------------------------	---

### Upper Tray

2260-08	Rapid Coupling Handle	2
2260-30	Spreader-Curette Size 7	1
2260-31	Spreader-Curette Size 8	1
2260-32	Spreader-Curette Size 9	1
2260-34	Spreader-Curette Size 10	1
2260-37	Spreader-Curette Size 12	1
2260-39	Spreader-Curette Size 14	1
2260-40	Spreader-Curette Size 15	1
2262-07	TLIF Trial Size 7	1
2262-08	TLIF Trial Size 8	1
2262-10	TLIF Trial Size 10	1
2262-12	TLIF Trial Size 12	1
2262-14	TLIF Trial Size 14	1
2260-64	Angled Roots Retractor	1
2260-66	Offset Roots Retractor	1

### Optionals

Catalog #	Description
2260-50	Reamer 7.0mm
2260-52	Reamer 9.0mm
2260-54	Reamer 11mm
2260-56	Reamer 13mm
2260-58	Reamer 15mm
22984IQL	Empty Case NEOLIF Optional Instruments
020.6010	Inge Separador Vertebral 26cm
020.1784	Foramenotomy Straight 4.0mm
020.1704	Rongeur Ferris-Smith Straight 4.0mm
2260-82	In-Situ Parallel Compactor
017.6452	Straight Ring Curette #6
017.6802	Angled Ring Curette #6
2261-04	Straight Graft Impactor
2261-06	Anterior Graft Impactor
2261-90	NEOLIF TLIF XR Templates Set

## ***Further Information***

### **Indications:**

For additional information, see package insert for contradictions, warnings, precautions, and potential adverse events.

This brochure describes the surgical technique used by \_\_\_\_\_, M.D. Biomet Spine, as the manufacturer of this device, does not practice medicine and does not recommend this product or any specific surgical technique for use on any individual patient. The surgeon who performs any implant procedure is responsible for determining the appropriate product(s) and utilizing the appropriate technique(s) for said implantation in each individual patient.

Biomet Spine  
100 Interpace Parkway  
Parsippany, NJ 07054  
(973) 299-9300 - (800) 526-2579  
[www.biometspine.com](http://www.biometspine.com)









100 Interpace Parkway  
Parsippany, NJ 07054  
[www.biometspine.com](http://www.biometspine.com)  
800-526-2579

All trademarks are the property of Biomet, Inc., or one of its subsidiaries, unless otherwise indicated. Rx Only. Not available for sale in the United States.

Copyright 2009 EBI, LLC. All rights reserved. P/N XXXXXX 01/09

---