MOD-EX PL

Alpha technique guide

NuVasive

This document is intended exclusively for physicians.

This document contains general information on the products and/or procedures discussed herein and should not be considered as medical advice or recommendations regarding a specific patient or their medical condition.

This surgical technique guide offers guidance but is not a substitute for the comprehensive training surgeons have received. As with any such technique guide, each surgeon should use his or her own independent medical judgment to consider the particular needs of the patient and make appropriate clinical decisions as required. A successful result is not always achieved in every surgical case.

As with all surgical procedures and permanent implants, there are risks and considerations associated with surgery and the implant, including the use of MOD-EX PL. It may not be appropriate for all patients and all patients may not benefit.

It is the surgeon's responsibility to discuss all relevant risks with the patient prior to surgery.

All non-sterile devices must be cleaned and sterilized before use. Multi-component instrument assemblies must be disassembled prior to cleaning.

This surgical technique guide provides information supplemental to information provided in the individual system instructions for use (IFU) regarding the products referenced herein.

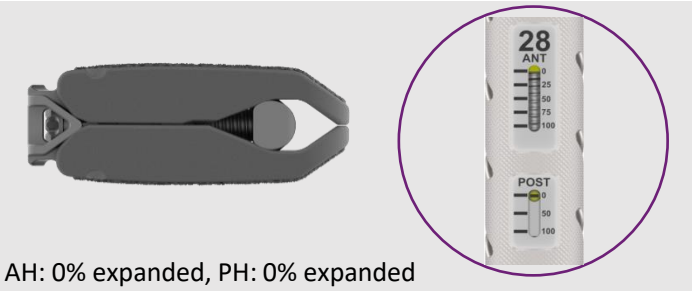
Please refer to the corresponding individual system IFU for important product information, including but not limited to, indications, contraindications, warnings, precautions and adverse effects, which can be found at nuvasive.com/eifu.

Contents

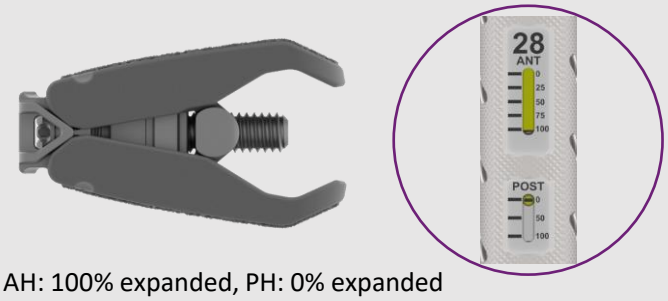
MOD-EX PL interbody system overview

Customizable lordosis

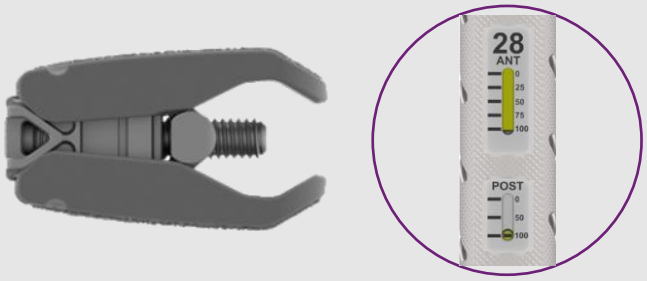
- Independent expansion of the anterior and posterior aspects of the implant to offer patient specific correction.
- Controlled, incremental expansion up to 17° or 22° secured by integrated auto-lock feature.



AH: 0% expanded, PH: 0% expanded



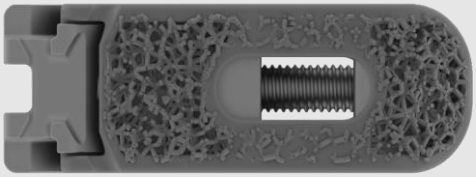
AH: 100% expanded, PH: 0% expanded



AH: 100% expanded, PH: 100% expanded

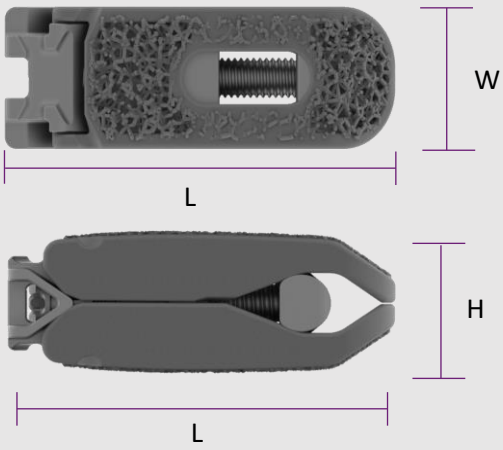
Modulus surface technology

- Modulus technology integrating endplate porosity designed to provide a favorable environment for bone in-growth.[1,2]
- Microporous endplate surface technology promotes new bone on-growth at 4 weeks in a sheep model.[1]
- Microporous endplate architecture is designed to maximize bone-to-implant contact, increasing expulsion resistance.[3]



Procedural versatility

- Designed for use across TLIF and PLIF techniques through comprehensive footprint offerings.



		Width x Length				
		9x24 mm	**9x28 mm**	**9x32 mm**	**11x28 mm**	**11x32 mm**
Anterior height	**7 mm**	Lordosis: 0-17° AH: 7-12 mm PH: 7-9 mm	Lordosis: 0-17° AH: 7-13 mm PH: 7-9 mm	Lordosis: 0-17° AH: 7-14 mm PH: 7-9 mm	Lordosis: 0-17° AH: 7-13 mm PH: 7-9 mm	Lordosis: 0-17° AH: 7-14 mm PH: 7-9 mm
	9 mm	Lordosis: 0-22° AH: 9-15 mm PH: 9-11 mm	Lordosis: 0-22° AH: 9-16 mm PH: 9-11 mm	Lordosis: 0-22° AH: 9-18 mm PH: 9-11 mm	Lordosis: 0-22° AH: 9-16 mm PH: 9-11 mm	Lordosis: 0-22° AH: 9-18 mm PH: 9-11 mm
	11 mm	Lordosis: 0-22° AH: 11-17 mm PH: 11-13 mm	Lordosis: 0-22° AH: 11-18 mm PH: 11-13 mm	Lordosis: 0-22° AH: 11-20 mm PH: 11-13 mm	Lordosis: 0-22° AH: 11-18 mm PH: 11-13 mm	Lordosis: 0-22° AH: 11-20 mm PH: 11-13 mm

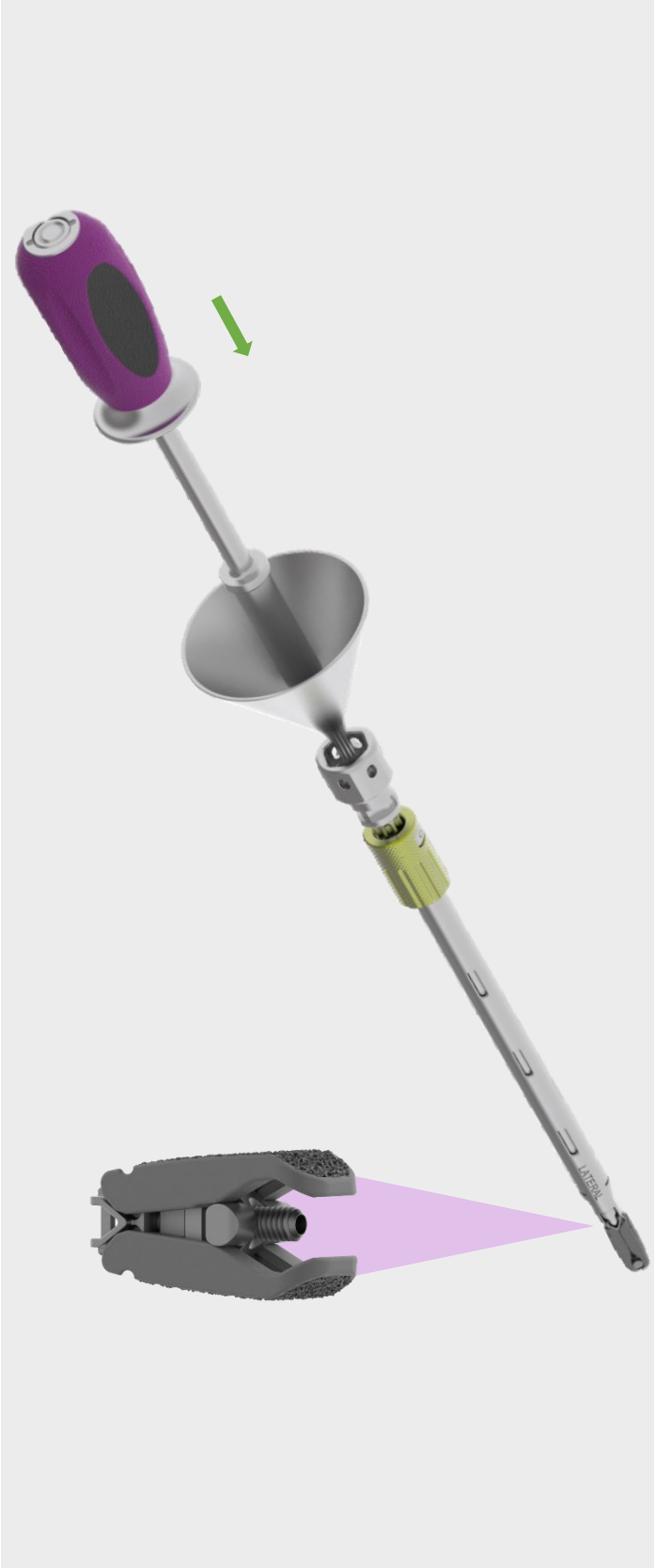
MOD-EX PL interbody system overview

Integrated graft delivery

- Advanced surface technology and central graft aperture.
- Intuitive assembly with graft delivery funnel and inserter.
- Simplified graft delivery provided by streamlined instrumentation.

Estimated autograft volumes		
W X L	Starting AH	Volume
9x24 mm	7 mm	0.25 cc
	9 mm	0.32 cc
	11 mm	0.34 cc
9x28 mm	7 mm	0.33 cc
	9 mm	0.42 cc
	11 mm	0.44 cc
9x32 mm	7 mm	0.42 cc
	9 mm	0.55 cc
	11 mm	0.57 cc
11x28 mm	7 mm	0.38 cc
	9 mm	0.48 cc
	11 mm	0.51 cc
11x32 mm	7 mm	0.49 cc
	9 mm	0.63 cc
	11 mm	0.66 cc

Note: Estimated autograft volumes are representative of a MOD-EX PL implant fully expanded, anteriorly and posteriorly.



Technique Guide

Equipment requirements

To perform a TLIF or PLIF procedure with MOD-EX PL, the following patient positioning supplies, instruments, implants, and fixation options are required.

- OR Items:
    - Radiolucent surgical table
    - Fluoroscopy
    - Microscope
    - Sterile surgical
    - Light source

- Instruments:
    - Excavation Micro Decompression Instruments
    - Excavation General Instruments
    - Excavation Disc Prep Instruments

- Access
    - MAS TLIF 2 system
    - MAS PLIF system
    - NuVasive Tube System

- Interbody
    - MOD-EX PL interbody system

- Posterior Fixation
    - Reline®

Patient positioning and OR setup

Place the patient on the operating table in a prone position. Prepare and drape in a conventional manner. Fluoroscope should have easy access to the surgical field for both A/P and lateral views. Fluoroscopic monitors and NVM5® unit should be placed in clear view (Fig. 1).

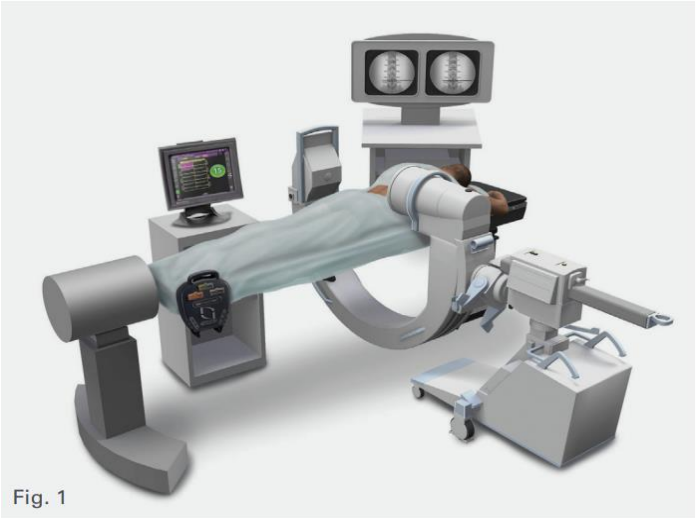


Fig. 1

Patient Prep for lumbar neuromonitoring with NVM5

For TLIF procedures utilizing EMG neuromonitoring, place the EMG electrodes on the patient prior to positioning and orient the NVM5 screen toward the operative surgeon. Refer to the NVM5 electrode patient prep guides for more information.

Once electrodes are properly placed, execute a twitch test to detect the presence of neuromuscular blocking agents, which can impact the accuracy of EMG monitoring.

Step 1

Anatomical landmark identification and initial incisions

Localize the disc space using fluoroscopy in the A/P and lateral views. Target the pedicles and/or spinous processes above and below the affected level and mark the location of each. Depending on whether a TLIF or PLIF procedure is performed, make a skin incision between the pedicle or spinous process markings, respectively. Size the incision appropriately for the retractor being used.

Step 2

Exposure

Using finger dissection, a Cobb or curette, release tissue from the bony anatomy at the affected level. Position and secure the retractor(s) so that the proper exposure trajectory is achieved.

Step 3

Discectomy

After achieving access to the target anatomy and completing a decompression, perform the necessary thorough annulotomy and discectomy (Fig. 2).

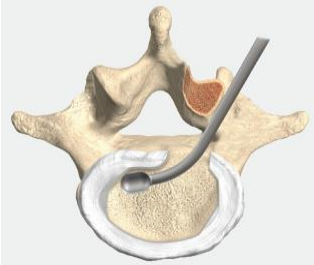


Fig. 2

NVM5: Free run EMG

Use Free Run EMG to continuously monitor for mechanical disturbances to neural structures when using the MOD-EX PL implant and inserter.

Step 4

Sizing

During discectomy, determine the appropriate implant height using a standard paddle sizer. Using an impacted or insert-and-rotate technique, sequentially increase the height until the desired disc height is achieved (Figs. 3, 4).

Note: *Paddle sizers are located in the Excavation General Instrument set (EXGENINS).*

Tip: *Implants are labeled by their anterior height in the collapsed state. At 100% anterior expansion, the anterior height will increase by 5-6 mm for the 24 mm length, 6-7 mm for the 28 mm length, and 7-9 mm for the 32 mm length. If posterior expansion is desired, all implants, regardless of footprint, can expand 2 mm posteriorly. Choose the appropriate implant to achieve desired end height and lordosis in the expanded state. Reference the sizing guide to determine the most accurate implant size.*

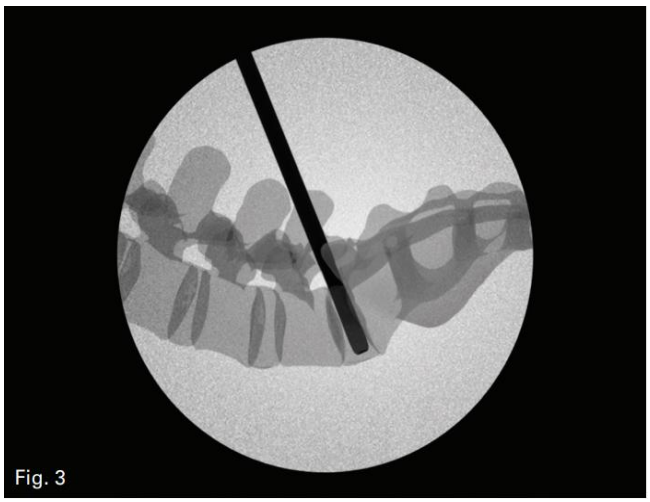


Fig. 3

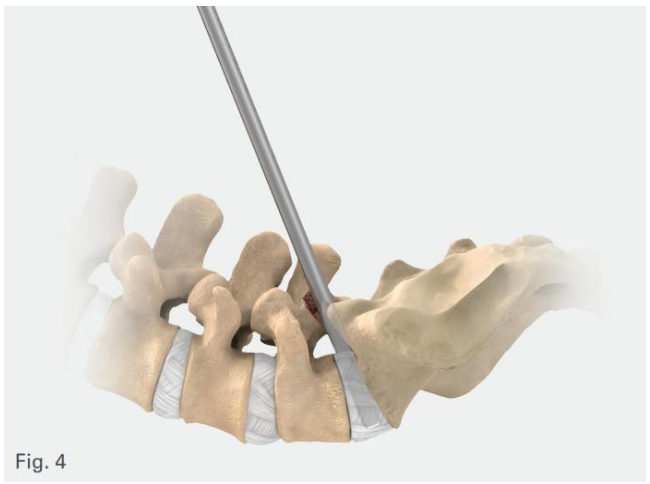


Fig. 4

Step 5

Trialing

If further trialing and distraction is required to determine the appropriate disc height, use the MOD-EX PL static trials (Figs. 5a and 5b).

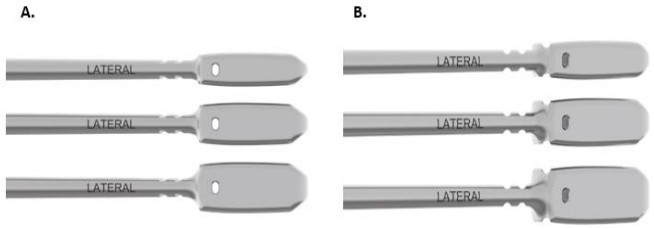


Figure 5. *Trials are offered in 7, 9, and 11 mm starting heights and 9 mm width. The thru-hole can be seen when positioned straight in the disc space during a PLIF procedure (**A**). From distal to proximal, the scallops indicate 24, 32 and 36 mm implant starting lengths when the trial is placed at a 30° oblique angle during a TLIF procedure (**B**). The back of the trial body indicates the 28 mm implant starting length in both straight and oblique orientations. If the width of the trials (9 mm) leaves room for a larger width implant, an 11 mm width implant may be selected.*

When using the static trial, select which trial to use based on starting height. Attach the T-handle at the proximal end, then insert the trial into the disc space in the same orientation that the implant will be placed. Insert until the desired depth is reached (Fig. 6).

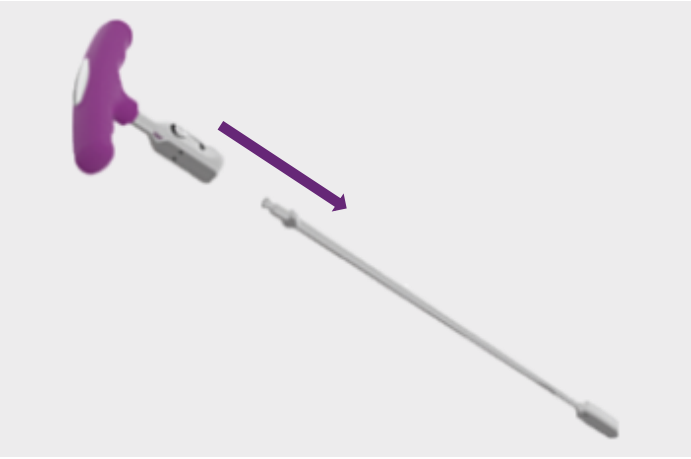


Figure 6. Attach the T-handle to the proximal end of the Static Trial.

Step 6

Inserter assembly

Select the appropriate implant based on sizing/trialing of the disc space. Confirm that the distal tangs of the inserter are fully open by rotating the gold thumbwheel counterclockwise until a hard stop is felt. Align the proximal aspect of the implant with the distal tip of the inserter. Attach the implant to the MOD-EX PL inserter by aligning the inserter tangs with the grooves on the implant and rotating the gold thumbwheel clockwise until the posterior edge of the implant is flush against the mating surface of the Inserter and a hard stop is felt (Figure 7a-7c).

Once the implant has been securely locked to the inserter, attach the counter torque to the shaft of the inserter (Figure 8).

Note: *When parallel to the floor, the counter torque handle can be used as a visual indicator to confirm a 30° trajectory of the inserter.*

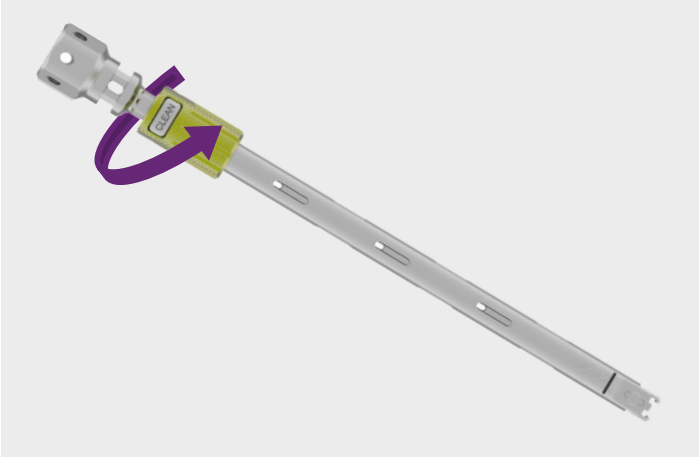


Figure 7a. Rotate the gold thumbwheel counterclockwise until a hard stop is felt.

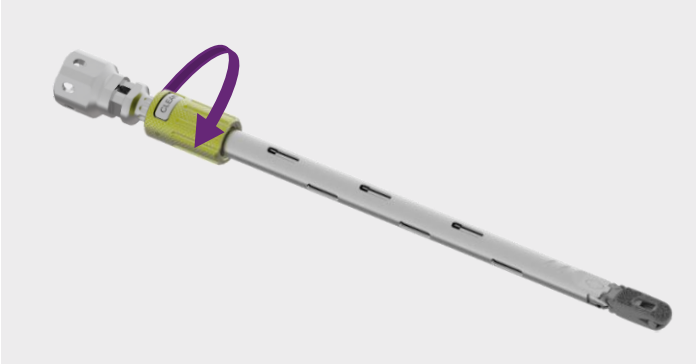


Figure 7b. Rotate gold thumbwheel clockwise to engage the distal tangs with the proximal end of the implant.

Figure 7c. Continue rotation of the thumbwheel until the proximal end of the implant is flush with the distal end of inserter and a hard stop is felt.

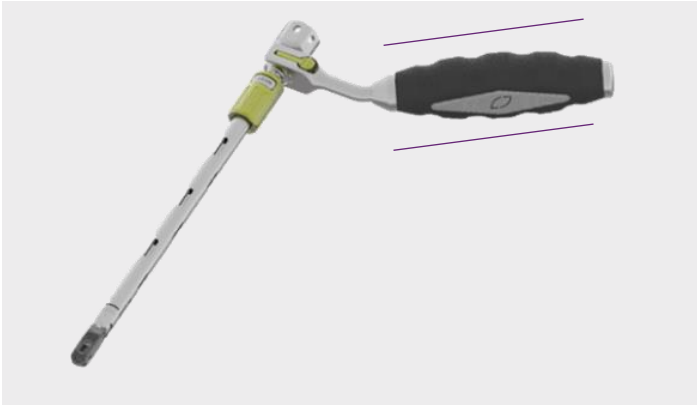


Figure 8. counter torque handle should be attached to the inserter so that the handle orientation is angled proximally.

Inserter assembly (cont.)

If the scale on the indicating strike plate is not set to the appropriate implant length, use the purple scale adjustment tool to rotate the inner sleeve of the indicating strike plate until the appropriate scale is seen. This may be performed at any time prior to implant expansion (Fig. 9).

Figure 9. Engage the purple scale adjustment tool to the proximal end of the indicating Strike Plate and rotate until the appropriate scale can be seen.

Attach the indicating strike plate to the proximal end of the dual expansion driver, then introduce both instruments through the inserter until the dual expansion driver is fully engaged with the Implant and the strike plate is locked onto the proximal end of the inserter. Once connected, the two gold nubs on the strike plate will pop out. (Figs. 10a-10c).

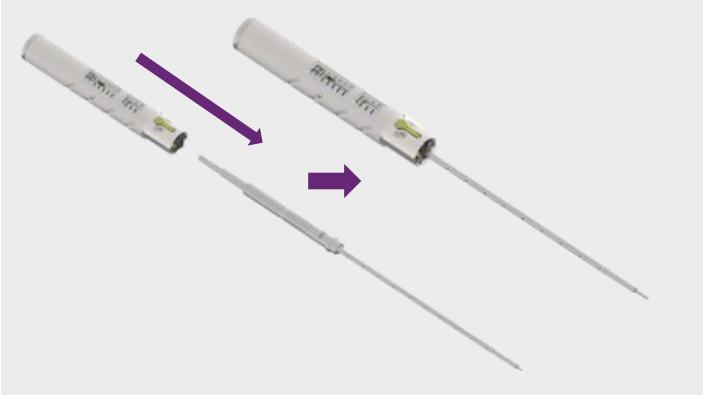


Figure 10a. Attach the indicating strike plate onto the proximal end of the dual expansion driver.

Figure 10b. Introduce the dual expansion driver with strike plate attached through the Inserter until the distal end is engaged with the implant and the strike plate locks securely onto the proximal end of the Inserter.

Figure 10c. Two gold latches on the indicating strike plate will click when the strike plate is fully engaged with the inserter.

Step 7

Implant insertion

Pre-pack the implant with graft.

Confirm that the indicating strike plate is showing 0% on both the anterior and posterior scales. Gently mallet on the proximal impaction surface of the strike plate until the desired depth has been reached (Fig. 11).

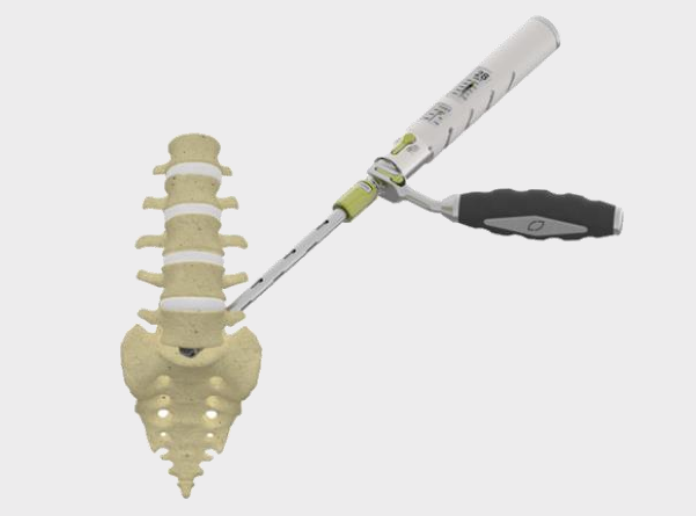


Figure 11. Implant insertion may be facilitated by impacting on the proximal surface of the strike plate.

Note: *To reset the scales on the strike plate, disengage the dual expansion driver from the strike plate by rotating the driver counterclockwise two full rotations and pull apart. Then, re-engage the driver and Strike Plate.*

For a TLIF procedure, place the implant at a 30°, oblique trajectory (Fig. 12). For a PLIF procedure, place bilateral implants straight into the disc space on the lateral aspects of the ring apophysis (Fig. 13).

Note: *Distance between the most anterior and posterior points of the implant at 30° oblique angle* (Table 1).

Implant length	A/P distance at 30° trajectory	
	0% PH expansion	100% PH expansion
24 mm	20.8 mm	19.1 mm
28 mm	24.2 mm	22.5 mm
32 mm	27.7 mm	26.0 mm

Table 1.

Figure 12. Implant inserted at a 30°, oblique trajectory.

Figure 13. Implants placed bilaterally for a PLIF approach.

Implant insertion (cont.)

During a TLIF procedure, the ideal 30° trajectory of the implant can be confirmed via lateral fluoroscopy by positioning the inserter until the scallops are seen clearly. These scallops are spaced at 13 mm and 18 mm from the most posterior aspect of the implant in the oblique position. The distal depth laser marking on the inserter is 14 mm from the posterior wall of the implant (Figs. 14a and 14b).

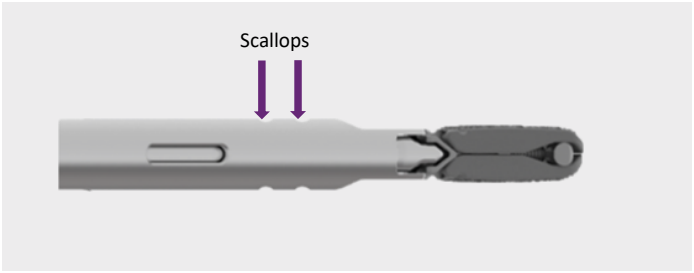


Figure 14a. The two scallops on the inserter, indicating 13 mm and 18 mm from the most posterior aspect of the cage, can be seen when the cage is positioned at a 30° trajectory.

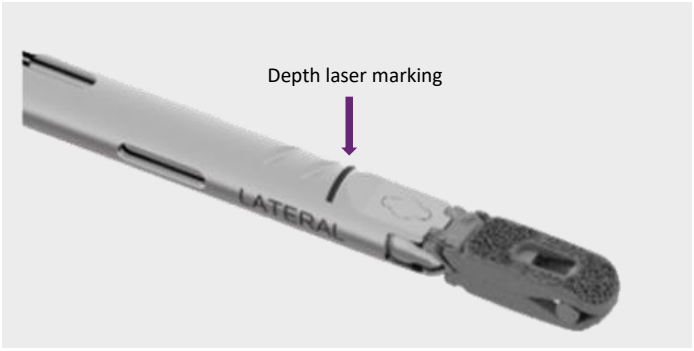


Figure 14b. The distal depth laser marking on the inserter is 14 mm from the posterior wall of the implant.

Additionally, the posterior scallop on the implant endplates (Fig. 15a) can be used to determine the location of most posterior corner once positioned in the disc space. The distance from the scallop to the most posterior aspect of the cage is 2 mm when the cage is in a PLIF position, and 4 mm when the cage is in a TLIF position (Fig. 15b and 15c).

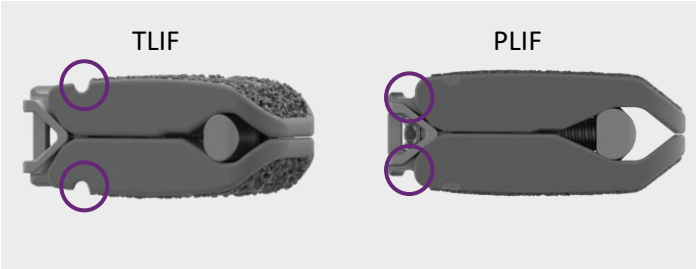


Figure 15a. Posterior scallops on the implant endplates can be used to determine the location of the posterior corner of the cage.

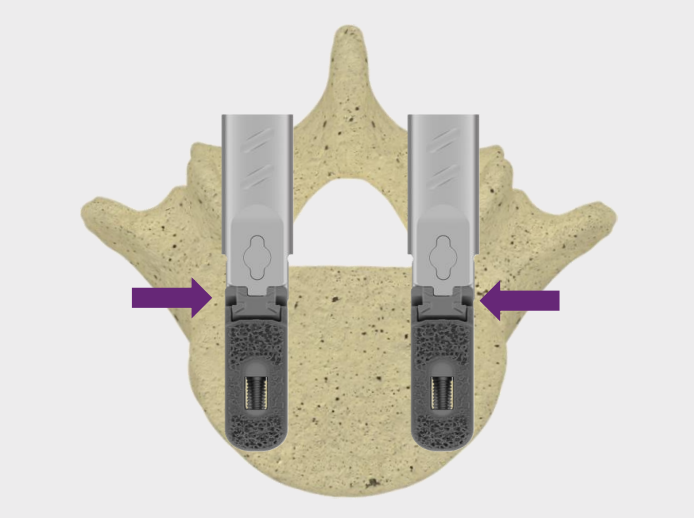


Figure 15b. The distance from the posterior scallops on the implant endplates are 2 mm from the most posterior aspect of the cage in a PLIF position.

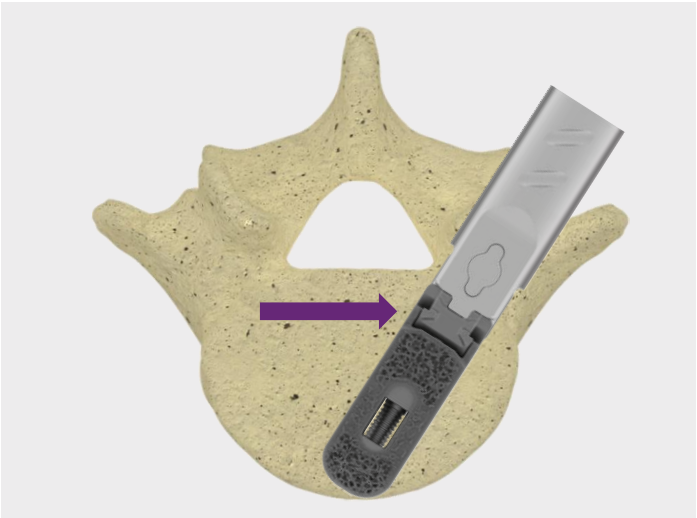


Figure 15c. Posterior medial corner of the implant will be the most posterior point in the TLIF position.

Implant insertion (cont.)

Once the implant has been placed in the desired position, attach the torque handle to the dual driver within the proximal end of the indicating strike plate (Fig. 16). Confirm that the proximal expansion setting knob on the torque handle is in the anterior (A) height setting by rotating the knob clockwise until a hard stop is reached and the “A” can be seen in the knob indication window. (Fig. 17).

Tip: *The torque handle is fully engaged with the dual driver and seated within the strike plate when the circumferential laser mark is no longer visible.*

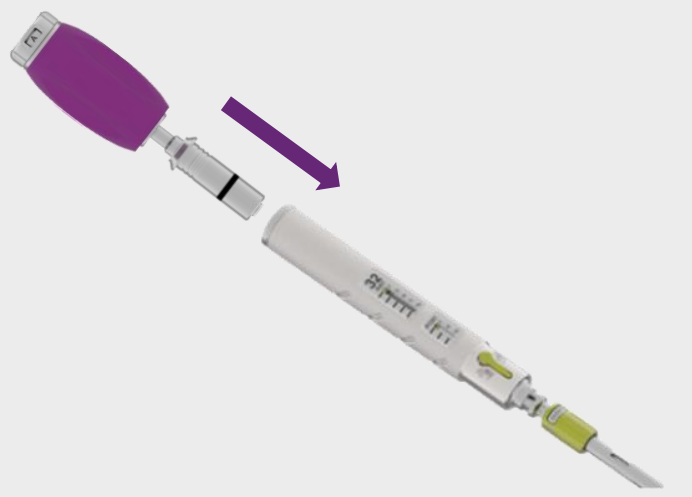


Figure 16. Attach the torque handle to the dual expansion driver within the proximal end of the strike plate.

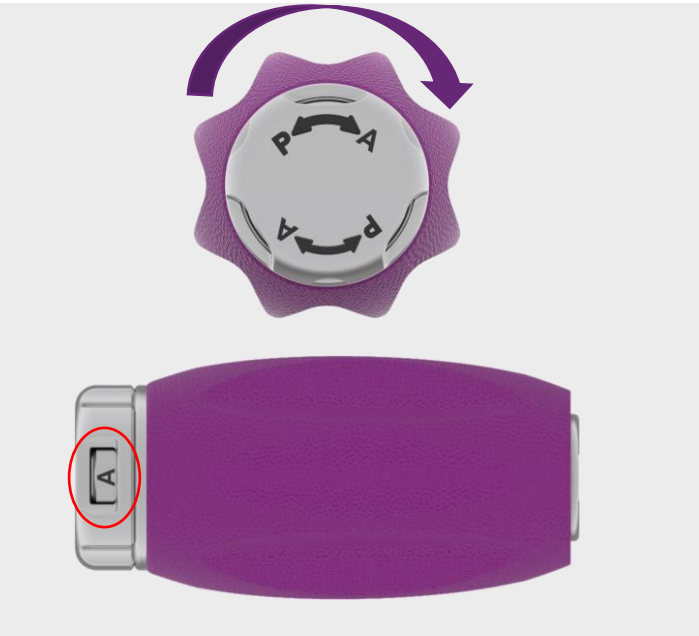
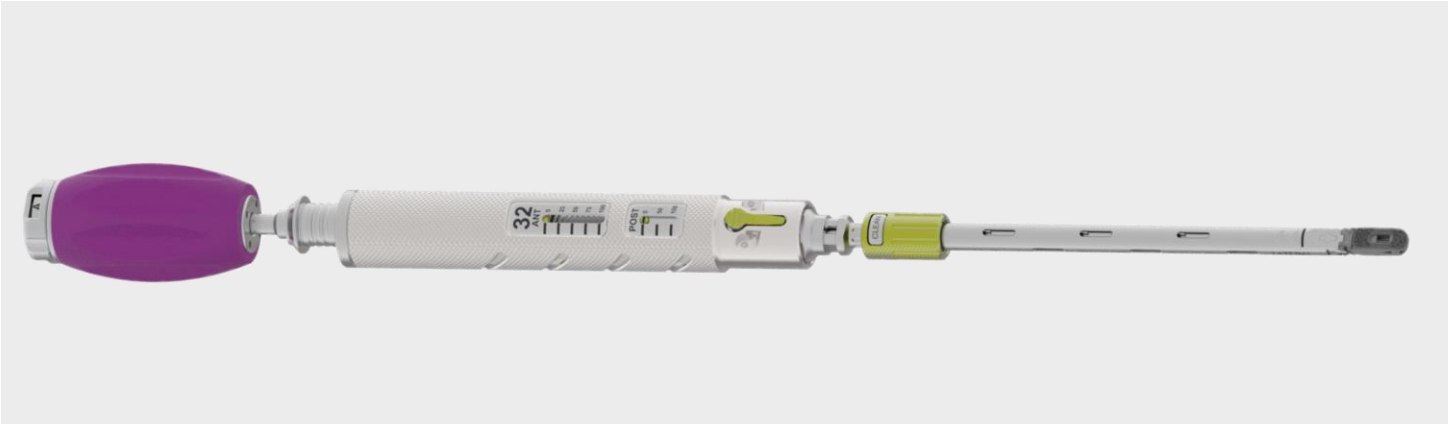


Figure 17. Rotate the expansion setting knob clockwise until a hard stop is reached and the “A” can be seen in the knob indication window.

Note: *A partially covered “A” indicates that the expansion setting is not in the correct position.*



Step 8

Implant expansion

Under fluoroscopy, expand the implant by slowly rotating the handle clockwise. Expand the implant until desired height is achieved and tactile resistance is met, or the torque limit has been reached.

Note: *The anterior height should always be expanded first to the desired position prior to posterior height expansion.*

Note: *The torque limit of the torque handle is 22.5 inch-lbs (2.5 Nm). The torque handle does not need to torque off for the implant to lock in its expanded position. It is recommended that the surgeon stops expanding once tactile resistance is met.*

Note: *In addition to fluoroscopy, the anterior scale on the indicating strike plate may be used to assess the relative percentage of device expansion (0 – 100%). A gold indicator within the proximal anterior scale will translate from proximal to distal, filling the window to provide the user a visual indicator of device expansion* (Fig. 18).

If posterior height expansion is desired, rotate the expansion setting knob counterclockwise until a hard stop has been reached and the "P" can be seen in the knob indication window (Fig. 19).

Note: *A partially covered "P" indicates that the expansion setting knob is not in the correct position. Under fluoroscopy, expand the posterior aspect of the implant by slowly rotating the handle clockwise. Expand the implant until desired height is achieved and tactile resistance is met, or the maximum posterior expansion has been reached (+2 mm).*

Figure 18. The anterior scale on the indicating strike plate shows that the implant has been expended 50% anteriorly.

Figure 19. Rotate the expansion setting knob counterclockwise until a hard stop is reached and the "P" can be seen in the knob indication window.

Step 8

Implant expansion (cont.)

Note: In addition to fluoroscopy, the posterior scale on the indicating strike plate may be used to assess the relative percentage of device expansion (0 – 100%). A gold pin within the distal posterior scale will translate from proximal to distal, lining up with the laser marked percentage lines to provide the user a visual indicator of posterior expansion (Fig. 20).

Figure 20. The posterior scale on the indicating Strike Plate may be used to assess the relative percentage of device expansion (0-100%).

Note: *Utilize the expansion calculator app to determine the AH (mm), PH (mm), and lordosis based on the expansion percentages indicated on the scales* (Fig. 21).

Confirm satisfactory implant position and expansion via lateral and A/P fluoro.

Once desired expansion is reached for the anterior and posterior aspects of the cage, remove the torque handle, strike plate and dual driver from the inserter by disengaging the gold latches (Figs. 22a and 22b).

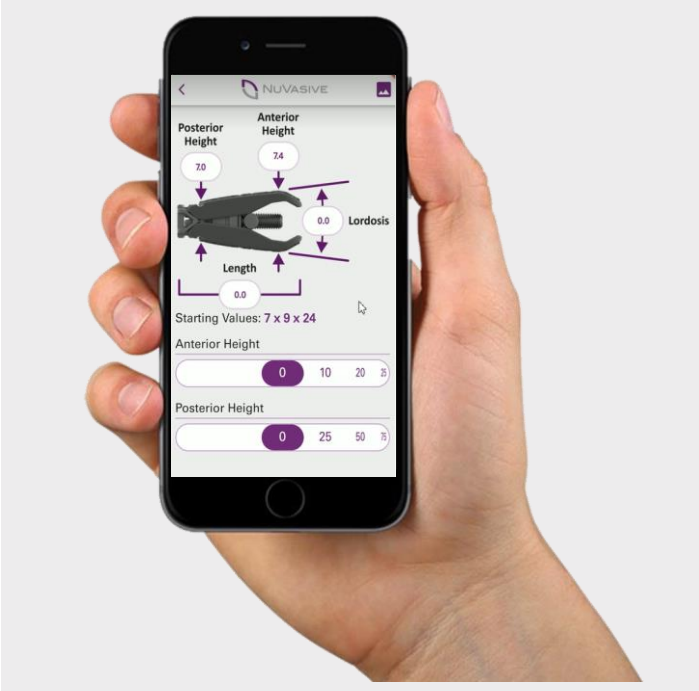


Figure 21. Calculator app representing AH, PH, and lordosis.

Figure 22a. Disengage the strike plate from the inserter by depressing the gold latches.

Figure 22b. After depressing the gold nubs, remove the dual driver and strike plate from the inserter.

Step 8

Implant expansion (cont.)

If additional expansion is desired, select the appropriate single driver (anterior or posterior), attach the torque handle to the proximal end, and introduce the driver through the inserter until fully seated with the implant (Figs. 23a and 23b). Once the additional expansion has been achieved, remove the single driver from the inserter.

Note: *The scales on the single drivers are only an accurate reflection of expansion when both the scale and the implant start at 0% expansion. If the single drivers are used to fine tune expansion after the dual driver has been used, the single driver scales should not be used as an accurate indication of expansion.*

Note: *The single drivers can be used as the primary expansion drivers if preferred. If so, use the anterior sleeve with the anterior single driver to accurately represent implant expansion. Slide the anterior sleeve over the anterior indicator scale and rotate the sleeve in 90° increments until the appropriate implant length is seen through the anterior sleeve window* (Fig. 24). *Then, confirm that the indicator scales are reset to 0% expansion on both drivers before use.*

Attach the implant to the inserter as noted in the MOD-EX PL inserter assembly section. Then, attach the torque handle to the proximal end of the anterior single driver and introduce the driver through the inserter until fully seated in the implant, which can be visually confirmed when the washer on the driver sits flush on the proximal end of the inserter. Expand the anterior aspect of the implant until the desired expansion has been reached. Repeat the same steps with the posterior driver.

Note: *The PUSH button on the anterior sleeve must be depressed prior to engaging the anterior single driver and/or rotating the sleeve. The PUSH button will pop out when the anterior sleeve is properly engaged.*

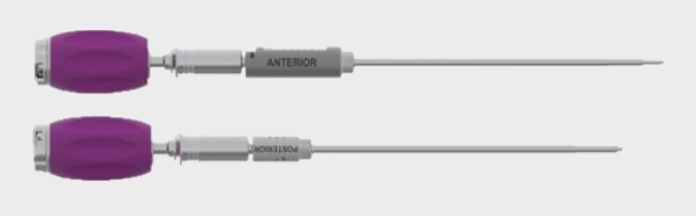


Figure 23a. Attach the torque handle to the proximal end of the appropriate single driver.

Figure 23b. Full anterior single driver assembly.

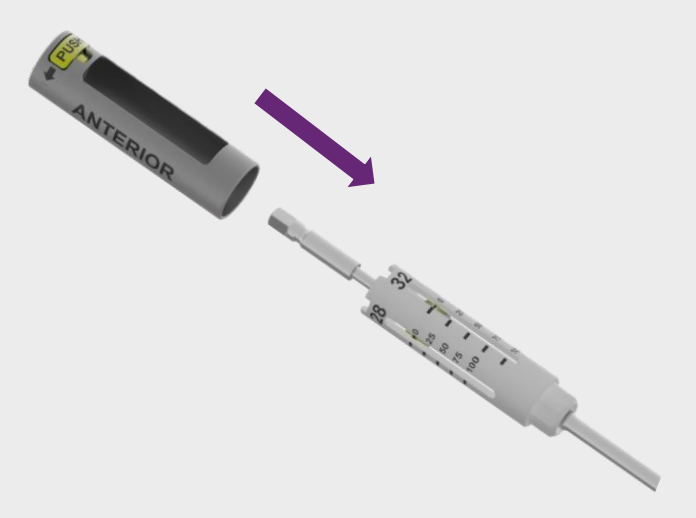


Figure 24. Attach the anterior sleeve to the anterior single driver, confirm the sleeve window is positioned over the appropriate implant length to obtain an accurate expansion reading.

Step 8

Implant expansion (cont.)

Repositioning

If the position is not satisfactory and the inserter is still attached to the implant, the implant can be repositioned by collapsing, adjusting position, and re-expanding. Reintroduce the appropriate single drivers with the torque handle attached. Rotate the handle counterclockwise to collapse the posterior aspect of the implant first, then repeat for the anterior aspect of the implant. Reposition, then re-expand the implant by repeating steps outlined in the implant expansion section above.

Note: *The posterior aspect of the Implant should always be collapsed first prior to collapsing the anterior aspect.*

Note: *If the surgeon is unable to collapse the implant to reposition, the Tamp may be utilized to reposition the implant in the expanded state* (Fig. 25).

Figure 25. The distal nub of the MOD-EX PL tamp seats with the proximal end of the implant.

Step 9

Graft delivery

Post-pack the implant with the graft delivery funnel or the graft delivery syringe.

If using the graft delivery funnel, pre-pack the long cannula of the funnel using the graft funnel stand and graft plunger (Fig. 26).

Note: *If desired, bone marrow may be post-packed into the expanded implant.*

Once packed, introduce the graft delivery funnel into the inserter until tactile engagement with the posterior aspect of the implant is felt (Fig. 27). Using the graft plunger, deliver the material into the implant (Fig. 28).

Note: *The graft delivery funnel holds 2 cc of material when fully packed.*

Note: *Packing of bone graft around the exterior of the cage to fill the interdiscal space should be done before implant delivery and expansion.*

Figure 26. Secure the graft delivery funnel in the funnel stand prior to pre-packing.

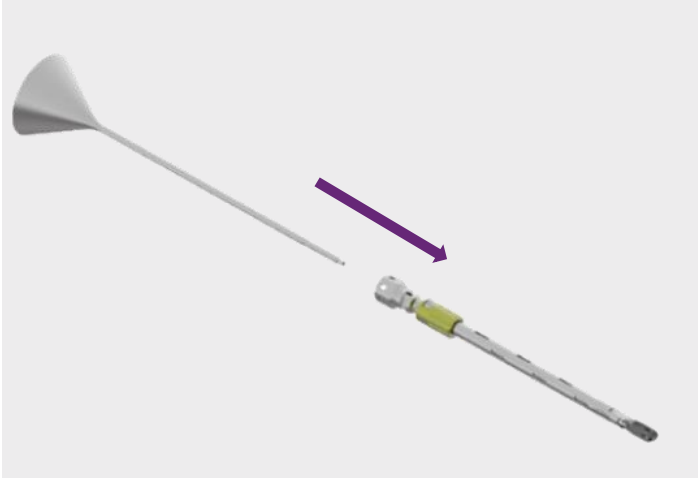


Figure 27. Introduce the graft delivery funnel into the inserter until tactile engagement with the posterior aspect of the implant is felt.

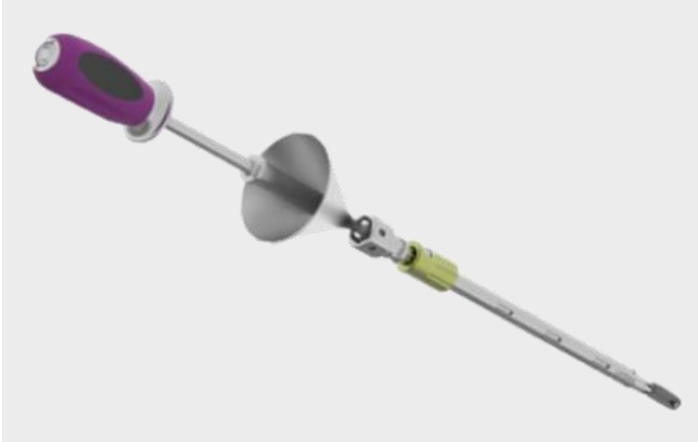


Figure 28. Use the graft plunger to deliver material into the implant.

If using the graft delivery syringe, pre-pack the syringe and introduce the distal tip of the syringe through the proximal end of the implant. Once docked, deliver graft material into the implant (Fig. 29).

Figure 29. Use the graft delivery syringe to deliver material into the implant.

Step 10

Inserter release

Remove the graft delivery funnel from the inserter. While maintaining downward pressure, remove the inserter by rotating the gold thumbwheel counterclockwise until a hard stop is felt to disengage the inserter from the implant (Fig. 30).

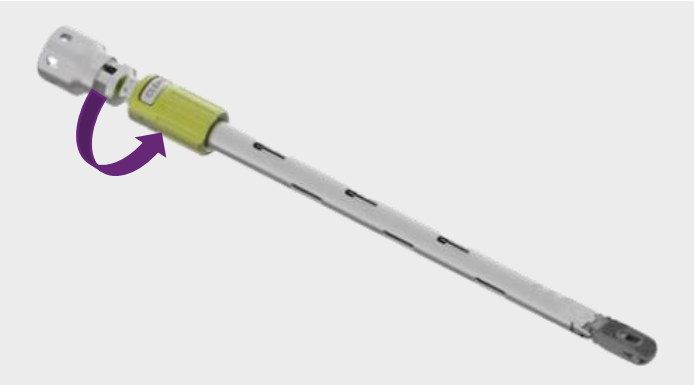


Figure 30. Rotate gold thumbwheel counterclockwise to disengage the distal tangs from the proximal end of the implant.

Tip: *Should there be any difficulty removing the inserter from the implant, lightly wag the inserter lateral to help disengage the inserter arms from the implant. Confirm the thumbwheel has been fully rotated in the CCW direction.*

Tip: *Should re-attachment of the inserter to the implant be required prior to packing graft, use the alignment tool as a guide. Insert the alignment tool into the implant, then slide the ratcheting inserter over the alignment tool until the inserter engages the proximal end of the implant.*

Step 11

Fixation

Place the desired supplemental fixation system, such as Reline® (Fig. 31).

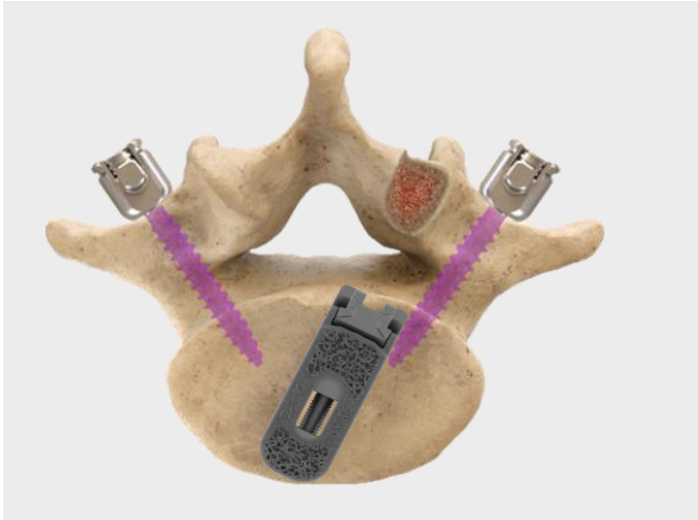


Figure 31.

Implant removal

Should implant removal be required prior to post-packing the implant, use the MOD-EX PL inserter and the appropriate drivers to collapse and remove the implant.

Note: *If needed, a slap hammer can be attached to the proximal end of the inserter via a hudson adapter to assist in implant removal.*

Should implant removal be required after post-packing, use the alignment tool to guide the inserter to the proximal end of the Implant for reengagement (Figs. 32a and 32b). With the inserter attached, slide the MOD-EX PL drill into the inserter (Fig. 33). Rotate the drill clockwise to create a channel through the graft within the proximal end of the cage. Once a channel has been created, reintroduce the dual or single drivers to collapse the implant fully. Remove the collapsed implant from the disc space.

Figure 32a. Dock the alignment tool to the proximal end of the interbody.

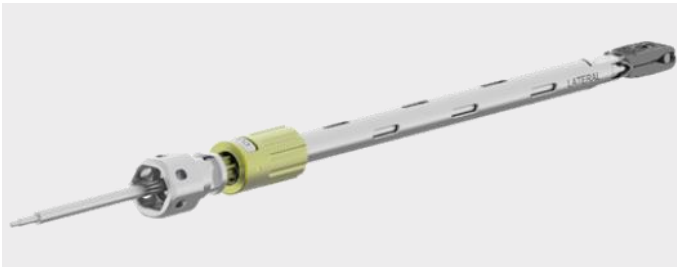


Figure 32b. Once the alignment tool has been docked to the proximal end of the Interbody, slide the Inserter over the alignment tool and reengage the distal tangs with the interbody.

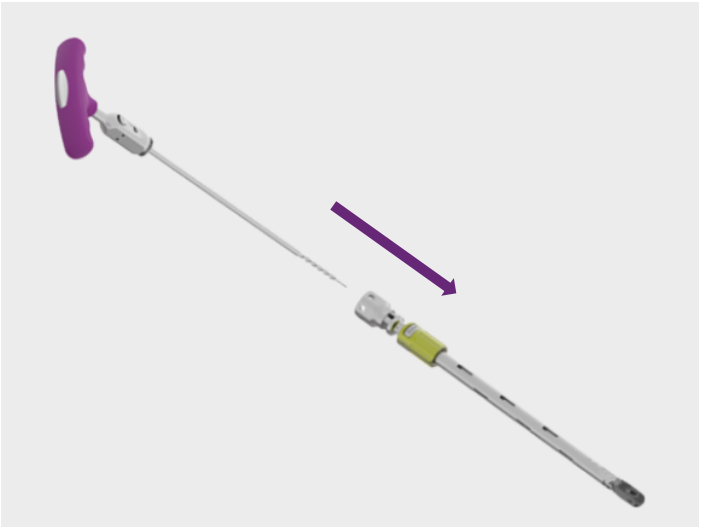


Figure 33. Introduce the drill through the proximal end of the inserter and rotate clockwise to create a channel through graft material.

If the inserter cannot be re-engaged to collapse and remove the implant, utilize the removal tool to directly clamp onto one or both posterior corners of the implant (Fig. 34). Once the removal tool is firmly engaged with the implant, attach a slap hammer to the proximal hudson connection and remove the implant.

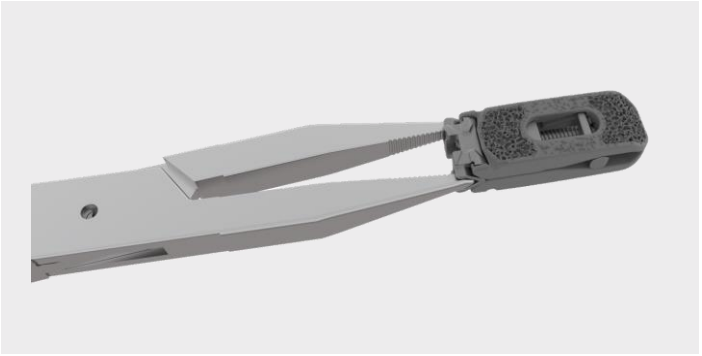
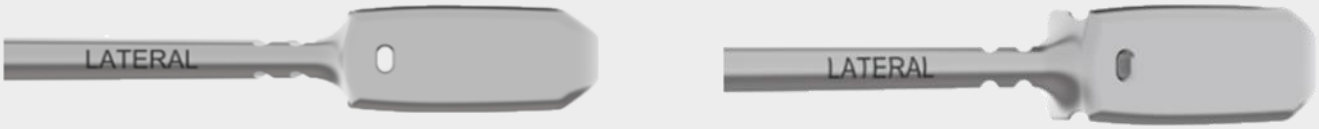


Figure 34. Engage the interbody with the removal tool by clamping the distal teeth of the Removal Tool directly onto one of both posterior corners of the implant.

MOD-EX PL system

MOD-EX PL instruments

MOD-EX PL Static Trials, 7/9/11 x 9 mm



MOD-EX PL Inserter

MOD-EX PL Strike Plate

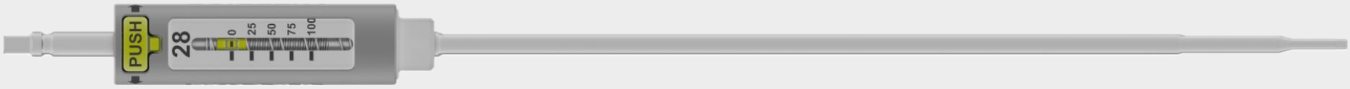
MOD-EX PL Counter Torque

MOD-EX PL Adjustment Tool, Strike Plate

MOD-EX PL instruments

MOD-EX PL Driver, Dual Expansion

MOD-EX PL Driver, Single Expansion Ant



MOD-EX PL Driver, Single Expansion Post

MOD-EX PL Single Driver, Anterior Sleeve

MOD-EX PL Handle, Torque Limiting

MOD-EX PL Tamp

MOD-EX PL instruments

MOD-EX PL Funnel, Graft Delivery

MOD-EX PL Drill

MOD-EX PL Alignment Tool

MOD-EX PL Funnel Stand, Graft Delivery

MOD-EX PL Removal Tool

MOD-EX PL disposables

Graft Delivery Syringe*


*This device is distributed by NuVasive and manufactured by Micromedics, Inc.

Catalog

MOD-EX PL TLIF Implants (ALPMODEXPLTLIFIMP)	
Description	Catalog #
Universal Pelican Case, Sterile Pack	1704712
MOD-EX PL, 7x9x28 mm 17°	1937928P2
MOD-EX PL, 7x9x32 mm 17°	1937932P2
MOD-EX PL, 7x11x28 mm 17°	1937128P2
MOD-EX PL, 7x11x32 mm 17°	1937132P2
MOD-EX PL, 9x9x28 mm 22° HL	1939928P2
MOD-EX PL, 9x9x32 mm 22° HL	1939932P2
MOD-EX PL, 9x11x28 mm 22° HL	1939128P2
MOD-EX PL, 9x11x32 mm 22° HL	1939132P2
MOD-EX PL, 11x11x28 mm 22° HL	1931128P2
MOD-EX PL, 11x11x32 mm 22° HL	1931132P2
ALPMODEXPLTLIFIMP Sterile IMP Size Key	1980880

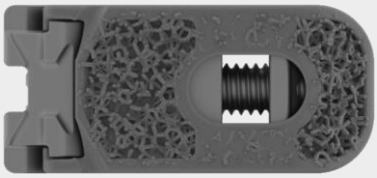
MOD-EX PL PLIF Implants (ALPMODEXPLPLIFIMP)	
Description	Catalog #
Universal Pelican Case, Sterile Pack	1704726
MOD-EX PL, 7x9x24 mm 17°	1937924P2
MOD-EX PL, 7x9x28 mm 17°	1937928P2
MOD-EX PL, 9x9x24 mm 22° HL	1939924P2
MOD-EX PL, 9x9x28 mm 22° HL	1939928P2
MOD-EX PL, 11x9x24 mm 22° HL	1931924P2
MOD-EX PL, 11x9x28 mm 22° HL	1931928P2
ALPMODEXPLPLIFIMP Sterile IMP Size Key	1980890

MOD-EX PL Disposables	
Description	Catalog #
Graft Delivery Syringe	5125000

MOD-EX PL Instruments (ALPMODEXPLINS)	
Description	Catalog #
NuVasive Generic Tray Lid	8801300
MOD-EX PL Instrument Tray Top Insert	1980865
MOD-EX PL Trial, 7x9 mm	1980709
MOD-EX PL Trial, 9x9 mm	1980909
MOD-EX PL Trial, 11x9 mm	1981109
MOD-EX PL Inserter	D1980831
MOD-EX PL Strike Plate	1980836
MOD-EX PL Driver, Dual Expansion	D1980833
MOD-EX PL Counter Torque	1980838
MOD-EX PL Handle, Torque Limiting	1980839
MOD-EX PL Adjustment Tool, Strike Plate	1980837
Universal Hudson T-Handle, QC	5155035
MOD-EX PL Instrument Tray Bottom Insert	1980863
MOD-EX PL Nipple Mat	1980861
MOD-EX PL Driver, Single Expansion Ant	1980834
MOD-EX PL Driver, Single Expansion Post	1980835
MOD-EX PL Single Driver, Anterior Sleeve	1980840
MOD-EX PL Tamp	1980850
MOD-EX PL Funnel, Graft Delivery	1980851
MOD-EX PL Funnel Stand, Graft Delivery	1980855
TLX Plunger, Graft Delivery	5800016
MOD-EX PL Drill	1980853
MOD-EX PL Alignment Tool	1980854
MOD-EX PL Removal Tool	1980852
MOD-EX PL Instrument Tray Base	1980862

Sizing guide

9x24 mm



Part number: 1937924P2, 7x9x24 mm 17°

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Part number: 1939924P2, 9x9x24 mm 22° HL

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Part number: 1931924P2, 11x9x24 mm 22° HL

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	75	12	13	-2	14	13	3	15	13	9	16	13	13
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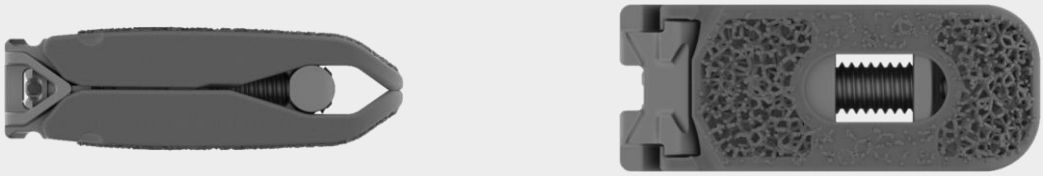
Sizing guide

9x28 mm



Part number: 1937928P2, 7x9x28 mm 17°

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Part number: 1939928P2, 9x9x28 mm 22° HL

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	50	10	10	0	12	10	5	14	10	10	15	10	16
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Part number: 1931928P2, 11x9x28 mm 22° HL

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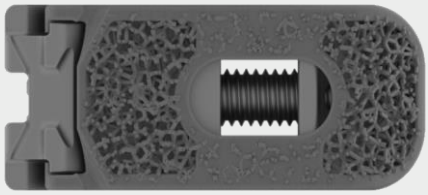
Sizing guide

11x28 mm



Part number: 1937128P2, 7x11x28 mm 17°

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Part number: 1939128P2, 9x11x28 mm 22° HL

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Part number: 1931128P2, 11x11x28 mm 22° HL

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	75	12	13	-2	14	13	2	15	13	7	17	13	13
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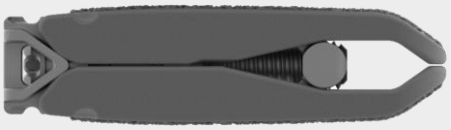
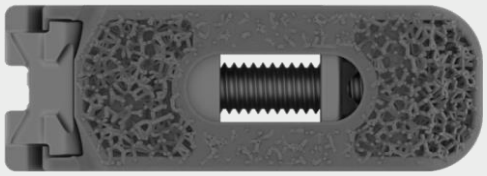
Sizing guide

9x32 mm





Part number: 1937932P2, 7x9x32 mm 17°

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	75	8	9	-3	9	9	-1	10	9	3	12	9	8
	100	8	9	-5	9	9	-3	10	9	1	11	9	5

Part number: 1939932P2, 9x9x32 mm 22° HL

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Posterior % expanded		AH	PH	Lordosis	AH	PH	Lordosis	AH	PH	Lordosis	AH	PH	Lordosis
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	50	10	10	0	12	10	4	14	10	9	16	10	16
	75	10	11	-2	12	11	2	14	11	7	16	10	13
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Part number: 1931932P2, 11x9x32 mm 22° HL

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	75	12	13	-2	14	13	2	16	13	7	18	13	13
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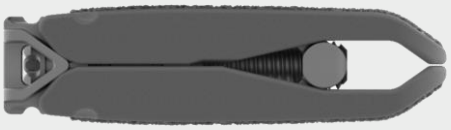
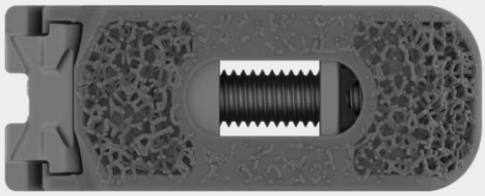
Sizing guide

11x32 mm





Part number: 1937132P2, 7x11x32 mm 17°

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Part number: 1939132P2, 9x11x32 mm 22° HL

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Part number: 1931132P2, 11x11x32 mm 22° HL

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	0	13	11	4	15	11	9	17	11	15	20	11	22
	25	13	12	2	14	12	6	16	12	12	19	11	19
	50	12	12	0	14	12	4	16	12	9	18	12	16
	75	12	13	-2	14	13	2	16	13	7	18	13	13
	100	12	13	-4	13	13	0	15	13	4	17	13	10

Notes

References

1. Fogel G, Martin N, Williams GM, et al. Choice of spinal interbody fusion cage material and design influences subsidence and osseointegration performance. *World Neurosurg* 2022;162:e626-34.
2. Fogel G, Martin N, Lynch K, et al. Subsidence and fusion performance of a 3D-printed porous interbody cage with stress-optimized body lattice and microporous endplates – a comprehensive mechanical and biological analysis. *Spine J* 2022;22:1028-1037.
3. Preclinical data on file. data may not be representative of clinical results. TR 9610861.

Micromedics, Inc.
1270 Eagan Industrial Rd.
St. Paul, MN 55121-1385, USA

NuVasive, Inc.
7475 Lusk Blvd., San Diego, CA 92121 USA
+1 800.475.9131

NuVasive, Inc. [Distributor for Graft Delivery Syringe]
7475 Lusk Blvd., San Diego, CA 92121 USA
+1 800.475.9131

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