WASTON*spine*

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PRODUCT CATALOG

2022

INTRODUCTION

Waston Spine

Waston Medical is one of the top players in China’s medical industry and together with our customers, we are driven to make healthcare better. Waston has collaborated with the nation's industry-leading organizations to offer a comprehensive portfolio consisting of traditional and proprietary spinal products. Our focus on bringing progressive, compelling products to market is guided by our quality first foundation - Waston fulfills the rigorous certification requirements of Medical Devices Directive 93/42/EEC. Our spectrum of orthopedic spine procedures is the result of Waston's responsiveness and commitment to both surgeon and patient needs. Our comprehensive portfolio offers surgeons the right product for each surgical situation. Waston offers one of the most comprehensive and diverse spine portfolios to treat a variety of pathologies through a less or minimally invasive surgical approach. Waston's breadth of offering includes components for every part of the procedure to deliver to you a complete solution.

PRODUCTS

Table of Contents

Walen™

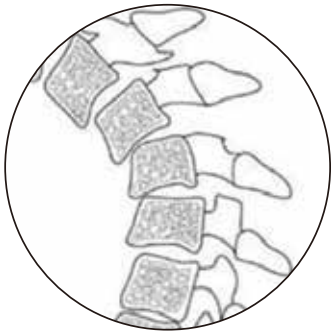
Anterior Cervical Plating System

Advantage

- Anatomic design-the lordotic are accod with cervical physiological structure.
- Ultra-low profile design-imitation to anterior vertebral tissues.
- Visibility window design-easier observation of graft and the viertebral end plates.
- Special locking mechanism-easy operation, effectively preventing the screw from back out.
- Locking screw design-fixed & varible angle locking screw, are convenient for operation choice.
- Bending design-ensure the holes do not deform during intraperative bending.

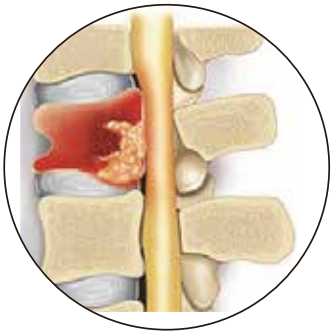
WASTONspine

INDICATION



Deformity

Fracture or dislocation



Tumor

Degenerative disc disease

SURGICAL TECHNIQUE

1. Patient positioning and approach

The patient is placed in the supine position with the head in slight extension. The posterior cervical spine is supported to establish and maintain normal cervical lordosis. The surgeon must then choose a right or left sided approach to the cervical column. After exposing the cervical spine, the self retaining retractor is placed to provide optimal visualization. A vertebral body distractor (1507003900) may be used. The distraction shafts (1507000400) are positioned midline in the vertebral bodies adjacent to the level to be treated. The distractor is placed over the shafts and the appropriate amount of distraction is applied. Discectomy are completed. Median corpectomy will be completed if required. Pituitary forceps, curettes, and kerissons may be used to remove the disc material and cartilage to expose the posterior longitudinal ligament.

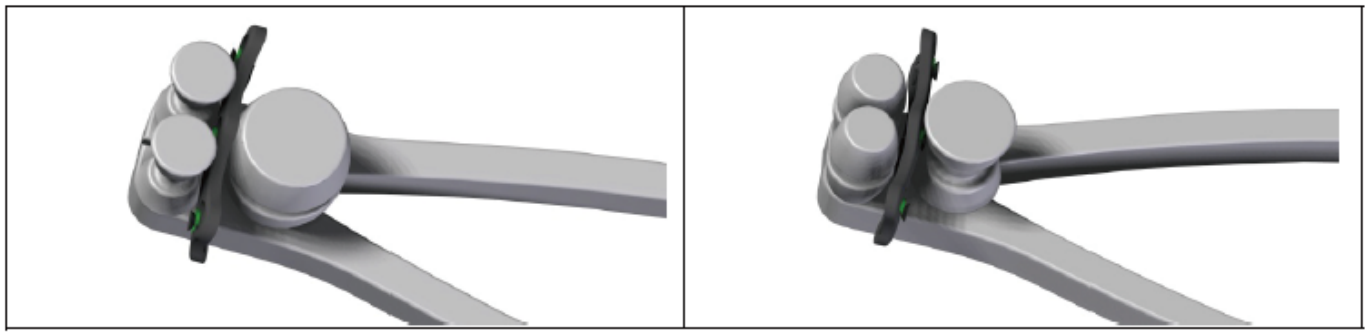
Bone graft/substitute (Titanium mesh, e.g.) is then positioned between both vertebrae.

2. Choosing plate size

When holding plates, be careful to avoid scratching or notching the plate surface. Following anterior bone graft placement, use the forceps (1503200500) to select the appropriate plate size and place it on the vertebral column. Confirm that the length is appropriate. The plate should span the entire fusion segment, preferably, using the shortest plate possible, therefore avoiding the adjacent disc space. Fluoroscopy may be utilized to optimize plate selection and screw placement.

3. Adjusting plate curvature

WALEN Anterior Cervical Plate is provided with a pre-machined lordotic curve. If required, the plate may be contoured to increase the amount of lordotic curvature or decrease the amount of lordotic curvature by using the Plate Bender (1503201300). A gradual bend should be made over the entire length of the plate and abrupt changes in curvature should be avoided.



Increase Lordosis

Decrease Lordosis

4. Placing temporary fixation pins

After selecting the appropriate plate, use the Temporary Fixation Pins (1503201900) to hold the plate in place while drilling and placing the screws. Using one of the plate holders mentioned in step 4, hold and lay the plate evenly on the anterior cervical spine. Place the Temporary Fixation Pin through the screw hole on the plate using the Holder (1503200600). After placing the two pins, fluoroscopy can be used to confirm optimal screw placement and trajectory. Any necessary adjustments may be done at this time and reconfirmed with fluoroscopy. Removing soft tissue and large osteophytes may improve bone-plate interface.

5. Preparing screw hole

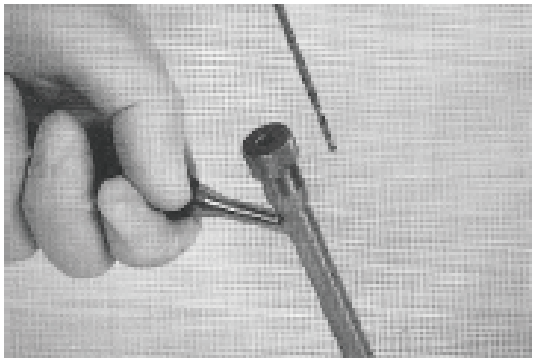
Before drilling hole, may need to prepare your screw hole with an awl. To use the Ceres Awl, place the tip of the awl (1503200100) shaft against the screw hole on the plate and press it in the direction of the screw angle desired. The awl will protrude into the desired hole. The awl also has a striking plate on the handle should you need to strike it.

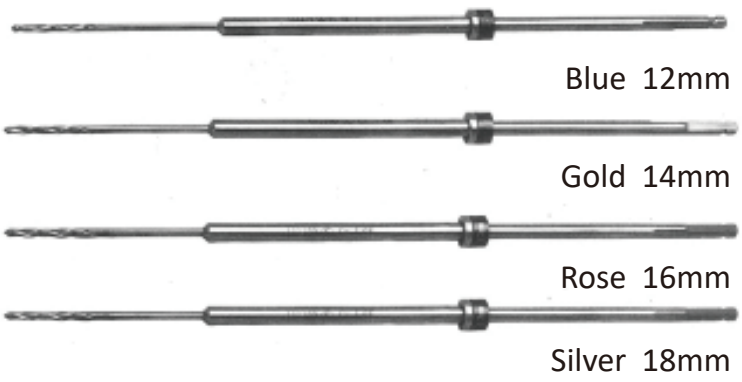
6. Drilling holes

Screw angle may be selected and the plate stabilized during the drilling procedure. The Plate Holder/ Drill Guide (1503200700) may be attached to the plate by placing the expandable end into a lateral screw hole and turning the knurled knob clockwise.

7. Selecting and using drill bits

The WALEN Anterior Cervical Plating System offers the ability to select various angles of screw placement to conform to individual patient anatomy. Some certain angles may direct the screws at vulnerable vascular and neural tissues. Use fluoroscopy to confirm drill bit penetration depth and angular orientation to assure that those structures are not at risk. Depth of screw insertion and angular orientation of the screw must also be confirmed by fluoroscopy. Typical screw placement is 5-10 degrees medial angulation with the screw directed 7.5 degrees rostral & caudal to correspond with the superior and inferior disc space respectively. Avoid severe angulation of the superior screw (greater than 16 degrees) which may prevent optimal locking of the screw with the cam. The drill length should correspond to the vertebral size, taking into consideration the quality of the bone, diagnosis etc. This system is available with 12mm (blue), 14mm (gold), 16mm (rose) and 18mm (silver) fixed length drill bits. These colors correspond to their respective screw size colors.





8. Using the tap

The WALEN System is provided with self-tapping screws. Hence, tapping is not always necessary. However, if tapping is required to prepare the passage of the screw, the Variable Depth Tap (1503201200) can be adjusted in 1mm increments to correspond to the drill depth setting. The length of the Tap that will extend beyond the soft tissue protection sleeve is set by turning the cylinder gauge mounted near the handle of the Tap in either direction. Please ensure that the release button is locked place and the desired measure before using the Variable Depth Tap.

9. Inserting screws

Select the appropriate screw length corresponding to the hole drilled. Using the Hex Driver (1503201600), pick the screw from the tray and insert it through the plate. Drill the first hole, tap if desired, and place the screw without tightening completely. After confirming proper plate position, drill, tap if desired and place screw in all remaining screw holes. Begin with the lateral hole that is opposite and diagonal to the first prepared hole. Remove Temporary Fixation Pins and perform final tightening of all screws in the same sequence as mentioned above.

10. Locking the cams

Locking all screws within the plate is the last step in the plating procedure. All screws should be secured to the vertebral bodies as previously described before beginning the cam locking procedure. To lock the screw, engage the cam screwdriver (1503201700) by fully seating the screwdriver straight into the slot of the cam. It is important to maintain a relative perpendicular orientation of the cam screwdriver to the cam slot during the entire locking procedure. Additional exposure may be temporarily required to properly align the cam screwdriver with the cam.Rotate the cam screwdriver clockwise, resistance will be felt as the cam contacts the head of the screw.

IMPLANTS

Anterior Cervical Plate (Titanium)

Anterior Cervical Plate (Extended) (Titanium)

Product Code	Holes	Length(mm)
11124-022	4 holes	22.5
11124-025		25
11124-027		27.5
11124-030		30
11124-032		32.5
11124-135	6 holes	35
11124-137		37.5
11124-140		40
11124-142		42.5
11124-145		45
11124-147		47.5
11124-250	8 holes	50
11124-252		52.5
11124-255		55
11124-257		57.5
11124-260		60
11124-262		62.5
11124-265		65
11124-270		70

Vertebral Screw (Titanium)

Product Code	Diameter(mm)	Length(mm)
11125-012	ϕ3.5	12
11125-014		14
11125-016		16
11125-018		18

Vertebral Screw (Titanium)

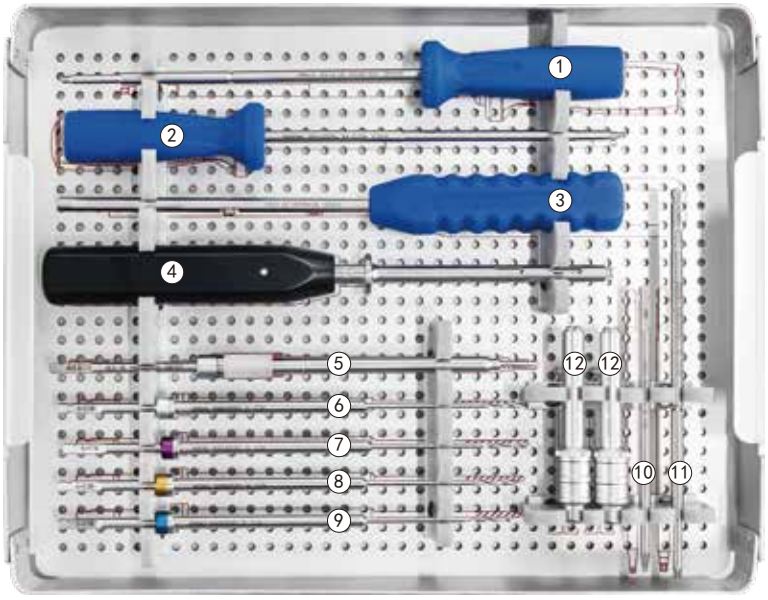
Product Code	Diameter(mm)	Length(mm)
11125-112	ϕ3.5	12
11125-114		14
11125-116		16
11125-118		18

Revision Screw (Titanium)

Product Code	Diameter(mm)	Length(mm)
11126-012	ϕ3.5	12
11126-014		14
11126-016		16
11126-018		18

INSTRUMENTS

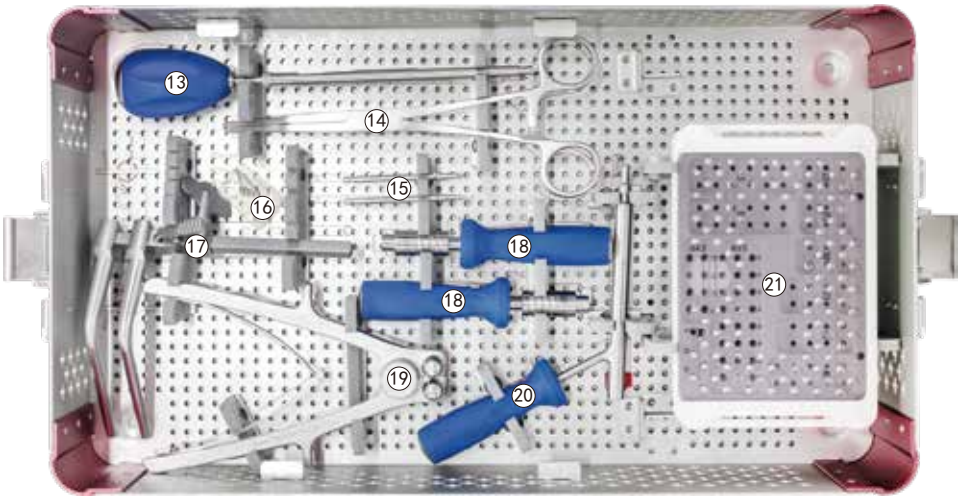
1503299900 WALEN Anterior Cervical Plate Instrument Set



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1503201400	Screw driver(Hex) & screw holding guide (Hex2.5)	SW2.5	1
2	1503201500	Screw driver (Hex2.0)	SW2.0	1
3	1507004100	Screw driver		1
4	1503200600	Position pin holder		1
5	1503201200	Tap	Ø3.5×13mm	1
6	1503200800	Drill bit & slide limited device (I)		1
7	1503200900	Drill bit & slide limited device (II)		1
8	1503201000	Drill bit & slide limited device (III)		1
9	1503210800	Drill bit & slide limited device (IV)		1
10	1503201700	Quick coupling screw driver	SW2.0	1
11	1503201600	Quick coupling screw driver	SW2.5	1
12	1503202000	Screw holding guide		2

1503299900 WALEN Anterior Cervical Plate Instrument Set



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
13	1503200100	Awl		1
14	1503200500	Plate holding clamp		1
15	1507004000	Distractor pin		2
16	1503201900	Temporary position pin		4
17	1507003900	Distractor		1
18	1503201100	Quick coupling handle		2
19	1503201300	Plate holding clamp		1
20	1503200700	Plate holding & guide for drilling		1
21	1503201800	Screw & plate case		1
22	1503200000	Instrument case		1

Neulen™

Cervical Laminoplasty System

Advantage

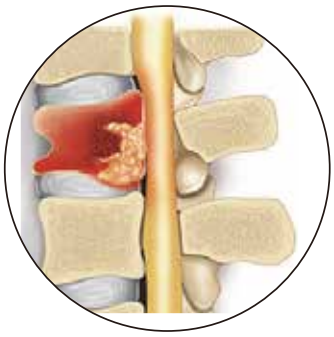
- In the posterior cervical open-door operation, it can achieve real-time lamina support function, and maximum maintain spinal canal enlarging state in laminoplasty
- The support piece specially designed on the underpart pf plate, can play a role of strong supporting before screws be fixed, and reduce the force on screws.
- The plate opening is arc shaped, which can maximize accept the lamina broken end, making it more stable.
- The board has certain plasticity, can be fixed after bending according to special situations.

WASTONspine

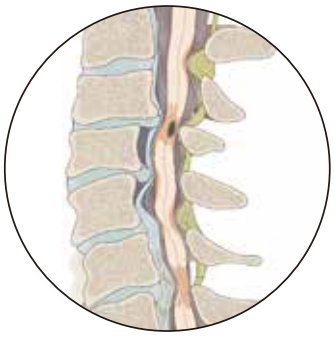
INDICATION

Multisegmental OPLL

Cervical spinal stenosis



Tumor



Multilevel cervical myelopathy

SURGICAL TECHNIQUE

1. **Patient positioning**

The patient is positioned prone as for most other posterior cervical procedures, with the head secured in a Mayfield three-pin head-holder, preferably in slight flexion (Figures 1 and 1a). Some cervical flexion helps reduce the overlap of the laminae and facet joints, which facilitates the laminoplasty itself. A reverse Trendelenberg position may help decrease bleeding from epidural and paravertebral veins.

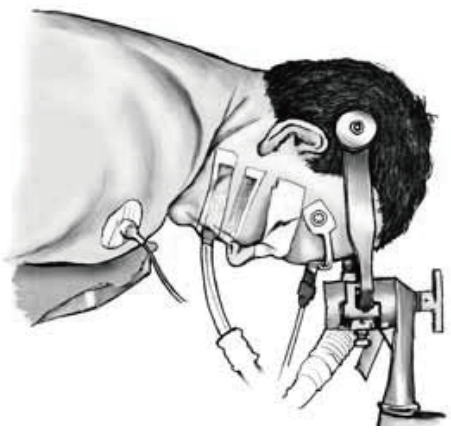


Figure 1

Figure 1a

2. Surgical exposure

The surgeon performs a midline posterior exposure from the inferior aspect of C2 to the superior aspect of T1 (Figures 2 and 3). The lateral dissection follows the subperiosteal plane out to the mid-portion of the lateral masses. Unlike the exposure required for a laminectomy and fusion, the muscle origins and insertions over the lateral half of the lateral masses are preserved. The insertion of the extensor muscles is only detached from the lower laminar margin of C2 to afford access to the C2-3 inter-laminar space. The junction of the medial aspect of the lateral mass with the lateral portion of the lamina is identified at each level planned in the decompression. At this point it is particularly helpful to correlate the local surface anatomy with the preoperative axial images.

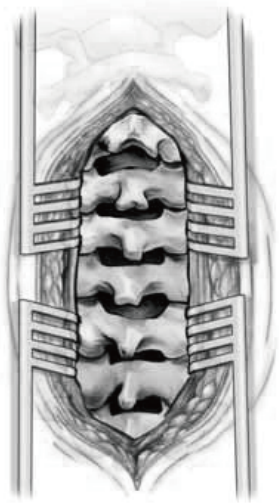


Figure 2

Figure 3

Note: In the event that the posterior decompression ought to extend to the C2 level, this can be accomplished while respecting the integrity of the C2 posterior arch and the majority of its muscular origins and insertions. A so-called dome laminectomy is performed by using a burr and kerrison to remove the lower margin of C2, followed by the cancellous bone and ventral cortex (Figures 4, 4a and 4b).

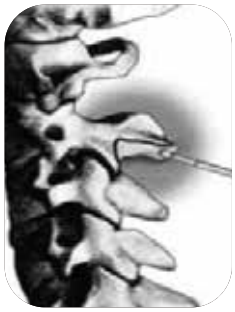


Figure 4

Figure 4a

Figure 4b

3. Open side trough preparation

The open side trough is prepared with a burr along the junction of the lamina and the lateral mass. Three layers of bone must be removed in turn: the dorsal cortex, followed by the cancellous layer and then the ventral cortex (Figure 5 and 5a). Hemostasis of the bone surfaces can be achieved with the use of thin bone wax “match sticks” or applying a slurry of powdered GelFoam™ and thrombin solution. The completion of the bone separation on the open side can be performed with a 1.0 millimeter Kerrison Rongeur. At this point, the objective is to ensure that bone separation has been achieved. This will permit one to assess the stiffness of the hinge as it is prepared for each lamina.

Figure 5

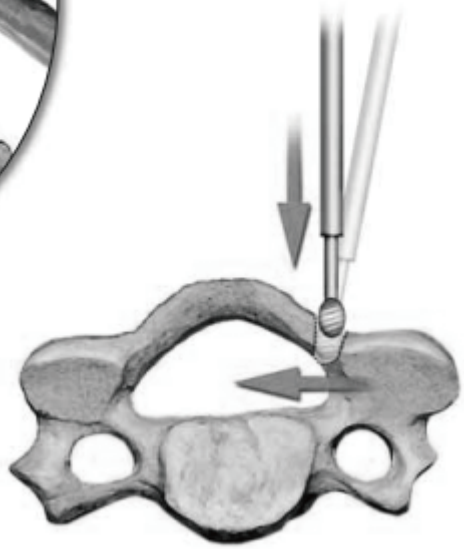


Figure 5a

Note: The side of the spinal canal to be opened may be chosen for a number of reasons. If supplemental foraminotomies are planned, then the open side should be ipsilateral to them. If the patient’s myelopathy is asymmetric, some surgeons prefer to open the more involved side. Finally, all things being equal, the choice may be influenced by the surgeon’s dominant hand. A right hand dominant surgeon will probably wish to stand on the patient’s left and open the left side. The converse would be the case for a left-handed surgeon.

4. Hinge side trough preparation

On the hinge side of the laminoplasty another trough is made with the burr of choice (Figure 6 and 6a). Care must be taken to avoid two common errors: placing the trough too medially over the laminae and/or removing excessive bone, either of which will lead to a floppy hinge. After removing the dorsal cortex and cancellous layer, one should pause to assess the stiffness of the hinge at each level. The laminar hinge should yield slightly with a moderate bending force. The surgeon should err on the side of leaving more bone, as fine-tuning can be done once every level is at or close to the desired thickness. If the hinge fails to bend despite resection of what seems to be an adequate amount of bone, check to be sure that the bone was completely divided on the open side.

Figure 6

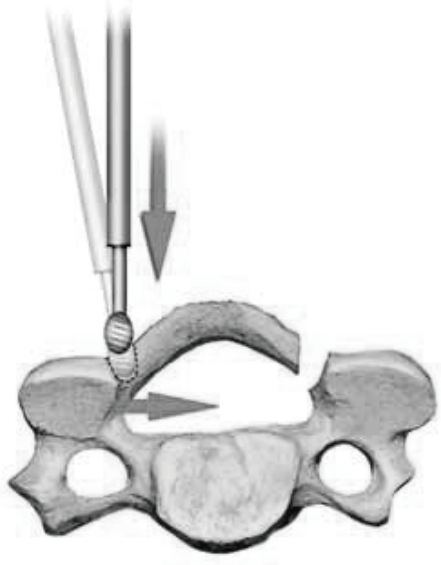


Figure 6a

5. Opening the laminoplasty

Following the hinge side preparation, divide the ligamentum flavum, facet capsules and viens as required. A 2.0mm or 3.0mm kerrison punch may be used to excise the ligamentum flavum at C2-C3 and C7-T1 (Figure 7). Division of the residual facet capsular tissue and the underlying epidural veins may be done in a number of ways. The authors prefer to do so with bipolar forceps and either a fine scissor or 1.0mm Kerrison punch (Figures 8). This may be facilitated by applying a slight opening force to the laminae while using a nerve hook to separate the veins from the dura. The laminae are now sequentially opened from one end to the other. The hinges are fashioned to be somewhat stiff. Use an angled probe to ensure that any epidural adhesions have been lysed beneath the laminae before fully opening the laminoplasty (Figure 9).

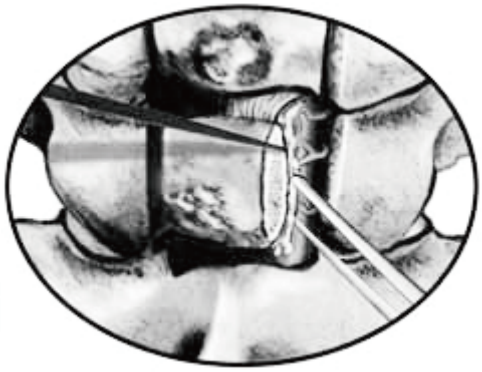


Figure 8

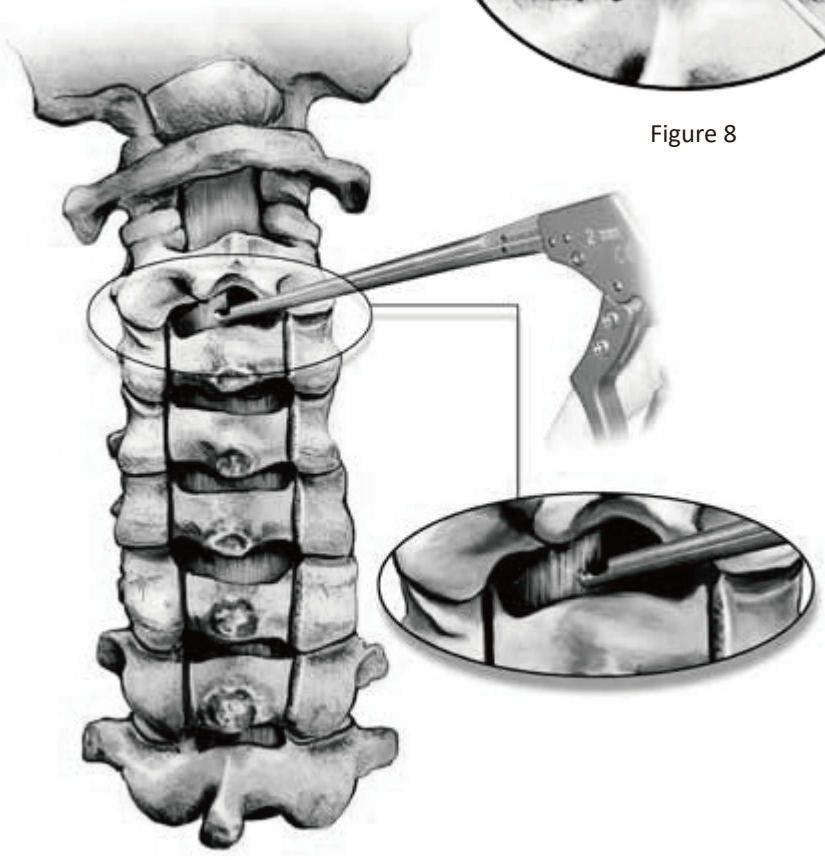


Figure 7

Figure 9

6. Keeping the door open
Utilizing the open door plate
Plate positioning

The appropriate size laminoplasty plate for each level is selected using the bone trials (Figure 10). Using the plate holder, the corresponding plate is then inserted by fitting the cut edge of the lamina into the laminar shelf of the plate, then seating the lateral portion of the plate down onto the edge of the lateral mass (Figure 11). The ventral prong on the under surface of the plate should catch the cut edge of the lateral mass. This helps to stabilize the plate's position while completing the fixation, as well as reducing any sheer loads on the lateral fixation screws.

Figure 10

Figure 11

7. Drill and screw insertion

Each of the lateral mass screw holes are made using the 1.9 x 5.5mm depth-stopped drill bit. The drill bit may be attached to the universal handle for manual drilling or attached to a power drill (Figure 12). Using the self-holding screwdriver, the self-tapping screws are inserted to anchor the plate to the lateral mass (Figure 13). The screw-driver sleeve is optional, and can be used to help secure the screw onto the screwdriver while inserting it into the bone. The sleeve can be placed over the screwdriver either before or after the screw has been loaded on the screwdriver (Figure 13a).

Figure 12

Figure 13

Figure 13a

8. The NEULEN plate

In the event that the surface area of the lateral mass is either too small in its cranial-caudal dimension, or it has been reduced in the addition of one or more foraminotomies, one could opt to use the NEULEN plate. The sizing and method of insertion are the same as for the standard open door and graft plates, except that the orientation of the lateral mass screws is now parallel to the long axis of the plate. The exposure may need to be widened slightly at any level where the NEULEN plates are needed.

Figure 14

IMPLANTS

NEULEN Laminoplasty Plate (Titanium)

Product Code	Data
11101-012	H=12mm
11101-014	H=14mm
11101-016	H=16mm

NEULEN Screw (Crossing Self-tapping) (Titanium)

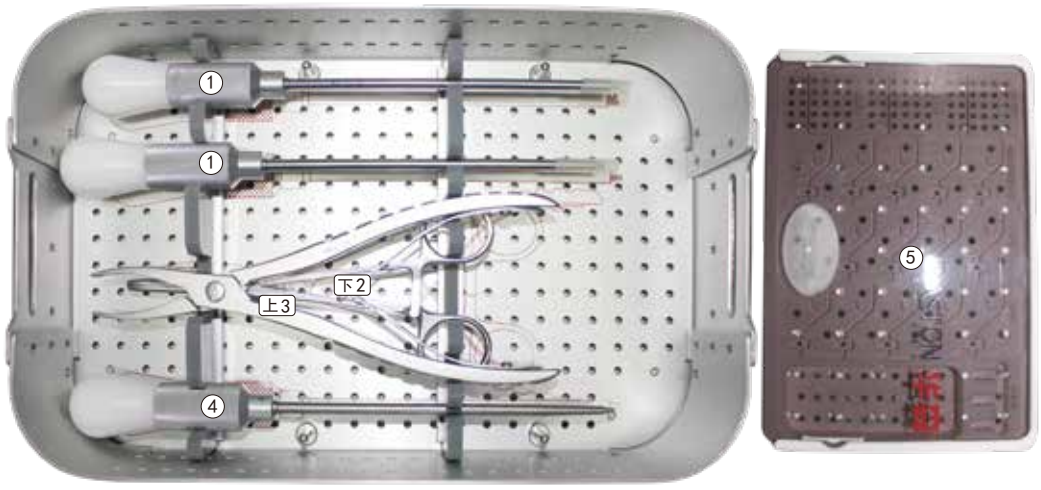
Product Code	Diameter(mm)	Length(mm)
10511-306	ϕ2.5	6
10511-308		8
10511-310		10

Screw (Crossing Self-tapping and Self-drilling) (Titanium)

Product Code	Diameter(mm)	Length(mm)
10511-406	ϕ2.5	6
10511-408		8
10511-410		10

INSTRUMENTS

1506799900 NEULEN Cervical Laminolasty System



Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1506700100	Screwdriver (Cross Head)		2
2	1506700300	Plate holding forceps		1
3	1506700400	Retractor		1
4	1506700200	Awl for opening hole		1
5	1506700500	Screw case		1
6	1506700000	Instrument case		1

M7™

5.5 Series

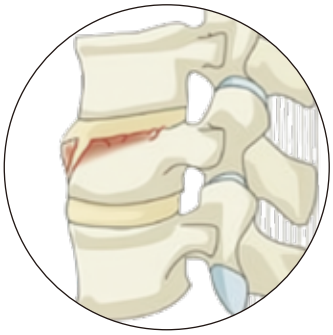
Advantage

- Ability to accept Φ5.5mm rods.
- Cannulated design, easy to insert pedical screws.
- Flexible channel, wide vision.
- Self-broken and lock, one step opeation,prevent slipping.
- Simple instruments, easy to operate.

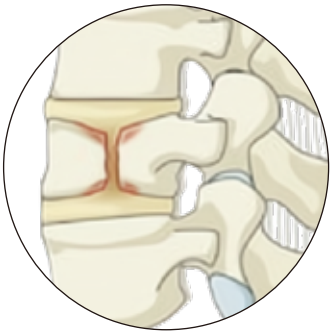
WASTONspine

INDICATION

Minor, nonstructural fractures



Wedge-compression



Split

Transosseous tension band disruption/Chance fracture

Posterior tension band disruption

Incomplete burst

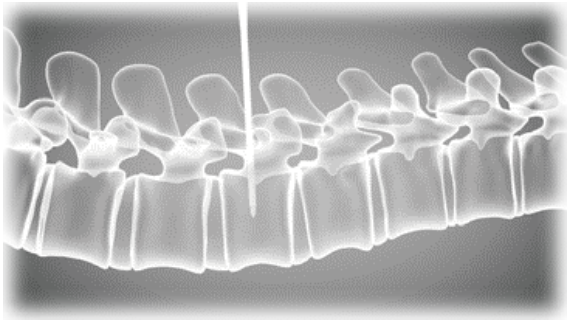
Complete burst

SURGICAL TECHNIQUE

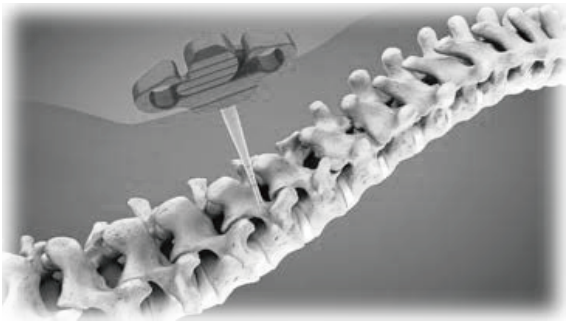
Place the patient in a prone position, Expose surgical site.

Transverse cutting 1.2cm ,matching the incision with the pedical screw head .

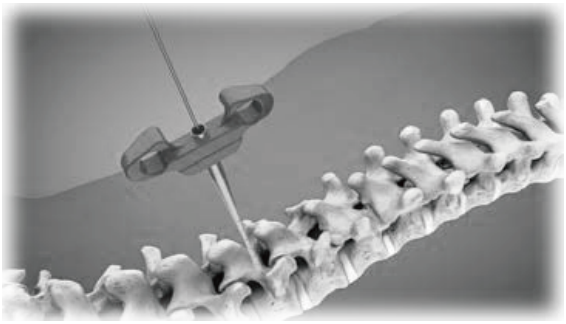
Using pedicle access needle,and pushing it into 5-10mm depth along the pedicle



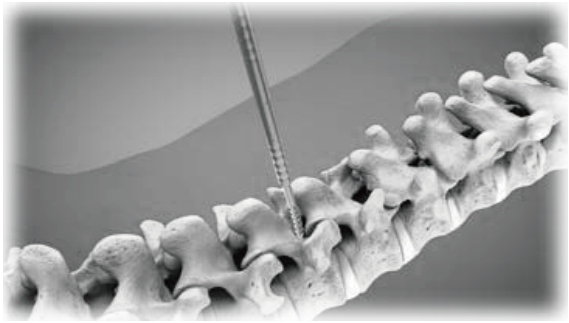
Confirming the desired depth with fluoroscopy



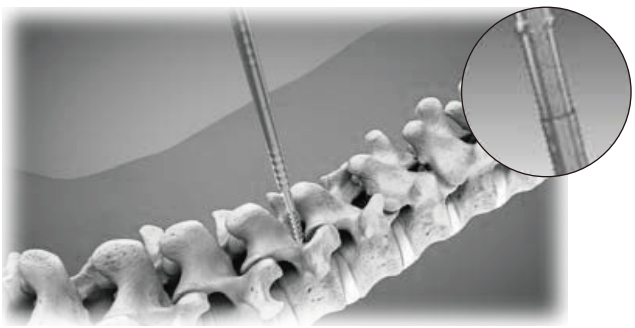
Continue inserting the pedicle access needle until to the right position of the vertebral body



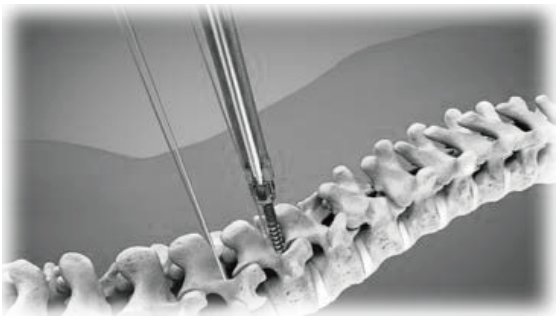
Removing the stylet,inserting the guiding wire through the pedicle access needle cannula, carefully removing the needle finally



Position the cannulated tap over the guidewire to penetrate the cortex of the vertebral body and crewate a thread pattern into the bone

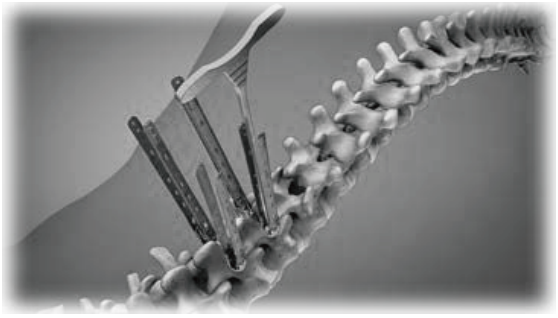


Using the tap sleeve to get the depth value ,or using equal-length guiding wire to confirm the implants' sizes

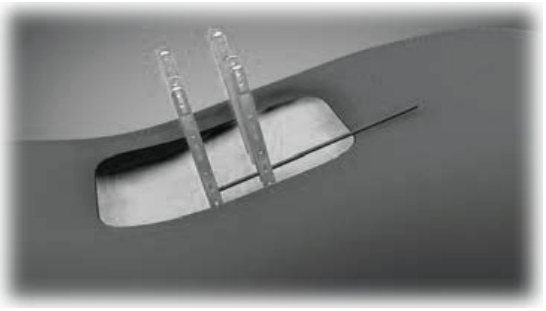


Inserting the left guiding wires in the same way

Connecting the screw inserter and pedical screws, advancing the screw inserter over the guiding wire,confirming the depth,and taking out the guiding wire

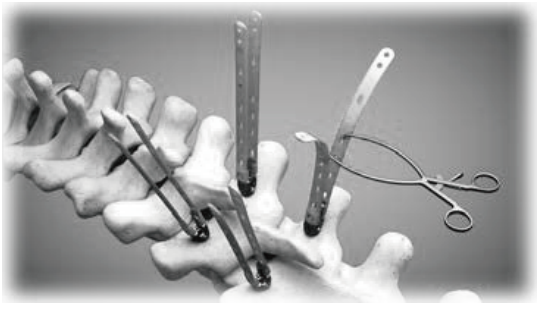


Using the screw head adjuster to align the screw heads

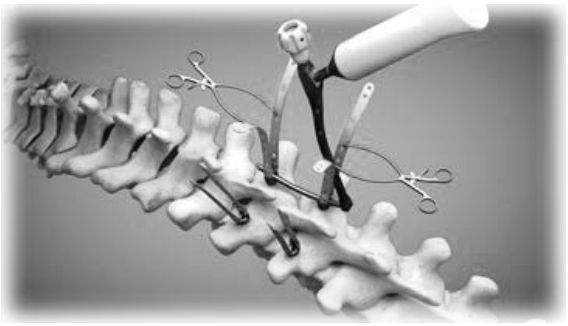


Using the template to estimate and choose the suitable rod out of the body

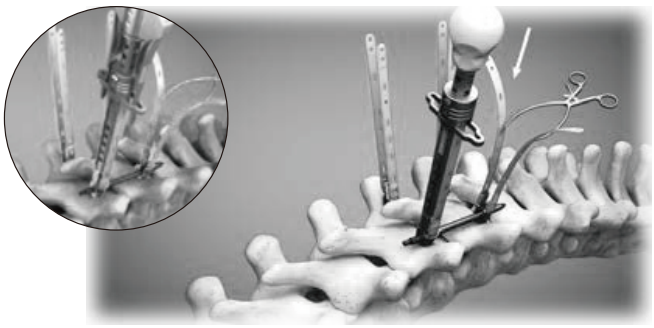
Choosing the suitable rod,using bender to pre-bending,to meet the requirement;（pay attention on the bending direction）



Using the retractor to open the extension plates,to allow direct visibility and access to the screw heads for rod insertion

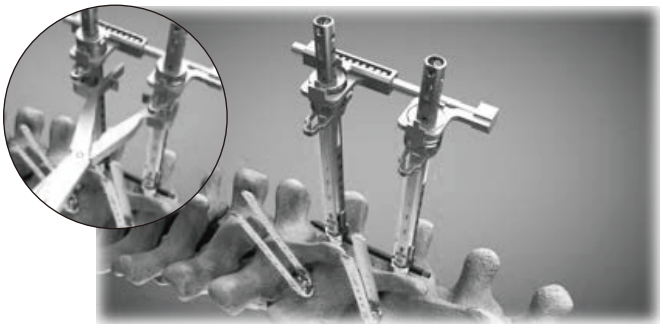


Connecting the rod and L-rod holding clamp,finishing the rod insertion



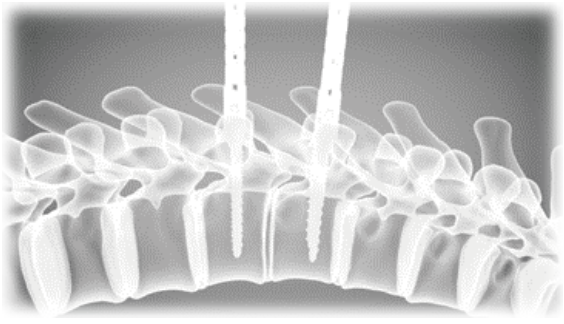
Using the pushing handle or rod pusher to position the rod ideally

After rod push，using preloaded screw-driver to install setscrew（preloaded screwdriver corresponds torx break-off setscrew or hex normal setscrew）



Connecting rod pusher with connceting sleeve，using distracting forcep or compression forcep based on the real situation

Using the setscrew tools to preload



Using C-arm machine to confirm the internal fixation

Using counter spanner and final screw-driver to lock the break-off etscrew（an important indication is that the setscrew breaks by itself）

When insert normal setscrew, using counter spanner and counter guide together

Using screw breaker to shear the long arm（pay attention:extension plate is single use）

IMPLANTS

Mono-axial Screw(III)
(Titanium)

Product Code	Diameter(mm)	Length(mm)
11270-330	ϕ5.5	30
11270-335		35
11270-340		40
11270-345		45
11270-350		50
11270-430	ϕ6.0	30
11270-435		35
11270-440		40
11270-445		45
11270-450		50
11270-530	ϕ6.5	30
11270-535		35
11270-540		40
11270-545		45
11270-550		50

Poly-axial Screw(III)
(Titanium)

Product Code	Diameter(mm)	Length(mm)
11271-130	ϕ4.5	30
11271-135		35
11271-140		40
11271-145		45
11271-330	ϕ5.5	30
11271-335		35
11271-340		40
11271-345		45
11271-350		50
11271-430	ϕ6.0	30
11271-435		35
11271-440		40
11271-445		45
11271-450		50
11271-530	ϕ6.5	30
11271-535		35
11271-540		40
11271-545		45
11271-550		50

Fixing Rod (Mini Invasive)

Product Code	Diameter(mm)	Length(mm)
11272-030	ϕ5.5	30
11272-035		35
11272-040		40
11272-045		45
11272-050		50
11272-055		55
11272-060		60
11272-065		65
11272-070		70
11272-075		75
11272-080		80
11272-090		90
11272-100		100
11272-110		110
11272-120		120
11272-140		140
11272-160		160
11272-180		180

Curved Fixing Rod (Mini Invasive)

Product Code	Diameter(mm)	Length(mm)
11272-340	ϕ5.5	40
11272-345		45
11272-350		50
11272-355		55
11272-360		60
11272-365		65
11272-370		70
11272-375		75
11272-380		80
11272-390		90
11272-400		100
11272-410		110
11272-420		120

Break-off Setscrew (Titanium)

Product Code	Diameter(mm)	Length(mm)
11273-000	/	/

Setscrew (Titanium)

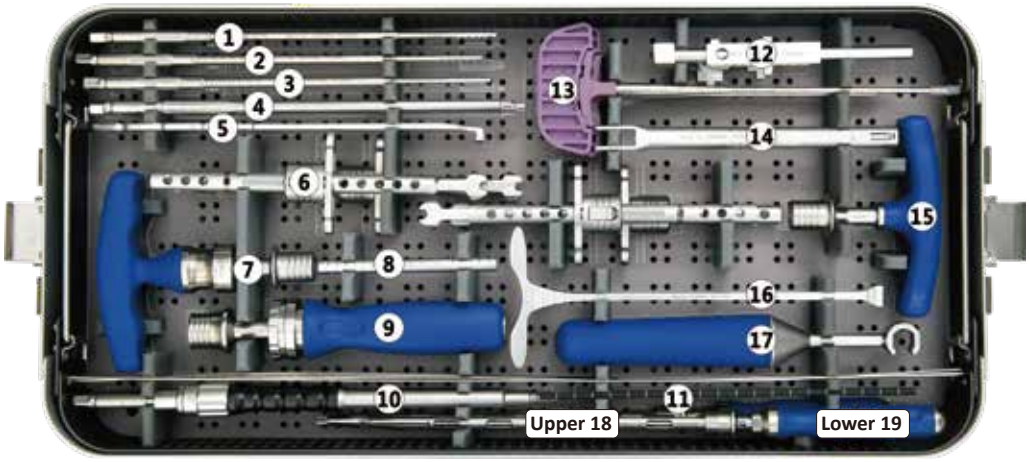
Product Code	Diameter(mm)	Length(mm)
11324-000	/	/

Extension Plate

Product Code	Diameter(mm)	Length(mm)
1503300100	/	/

INSTRUMENTS

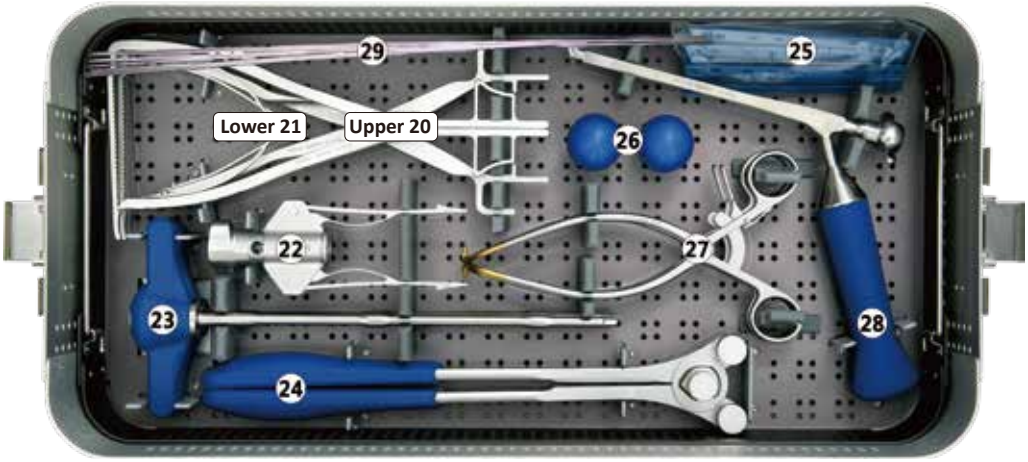
1503399900 M7 Series Spinal System Instrument Set



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1503300200	Tap	1.5	1
2	1503300300	Tap	5.5	1
3	1503300400	Tap	6.5	1
4	1503300700	Torx screwdriver		2
5	1503301300	Screw breaker		1
6	1503301600	Rod pusher		4
7	1502600300	Torque spanner	12 N	1
8	1503300800	Tap guide		1
9	1503302300	Quick coupling ratchet handle		1
10	1503300500	Screw inserter		2
11	1503301000	Template		1
12	1503301500	Connecting sleeve		1
13	1503302100/12100	Puncture device(Long/Short)		1 each
14	1503300900	Counter guide		1
15	1502610200	Quick coupling handle(T)		1
16	1503301200	Screw adapter		1
17	1503302400	Counter spanner		1
18	1503300600	Nut holder (Hex)		1
19	1503310600	Nut holder (Torx)		1

1503399900 M7 Series Spinal System Instrument Set



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
20	1503302000	Distracting forcep		1
21	1503301900	Compression forcep		1
22	1503301400	Rod pusher		1
23	1503301800	Screwdriver		2
24	1502601700	Rod bending forcep		1
25	1503300100	Pulling bolt		20
26	1503302800	Pushing handle		2
27	1503302900	Retractor		2
28	1503301700	L-Rod holding clamp		1
29	1503301100	Guide pin	Ø1.5	8
30	1503300000	Instrument case		1

S 7™

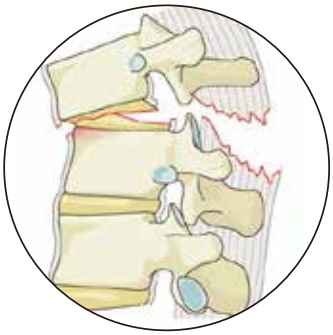
5.5 Series

Advantage

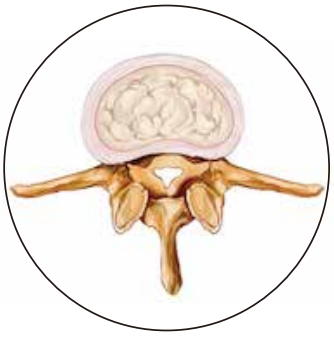
- Ability to accept Φ5.5mm rods.
- The inner thread of screw is a new hook lock thread.
- New compression setscrew for enhanced stability of the rod.
- The shaft of the tapered screw is double-threaded, which is easy to screw into the screw and has a strong grip on the bone fragment.
- Innovative and improved new instruments, simple and convenient operation.

WASTONspine

INDICATION

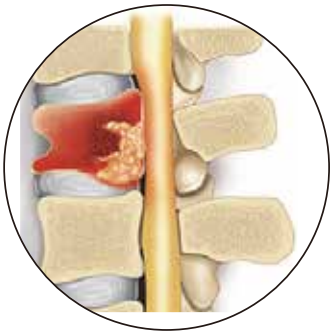


Fracture or dislocation



Spinal stenosis

Degenerative disc disease



Tumor, tuberculosis

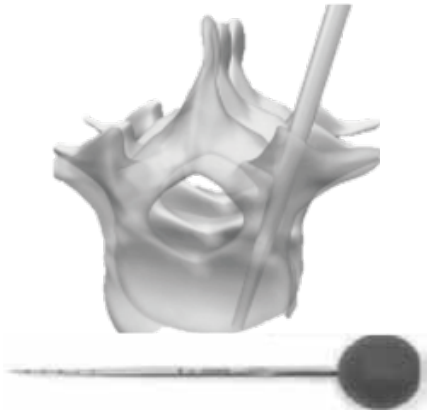
Scoliosis

S7

SURGICAL TECHNIQUE

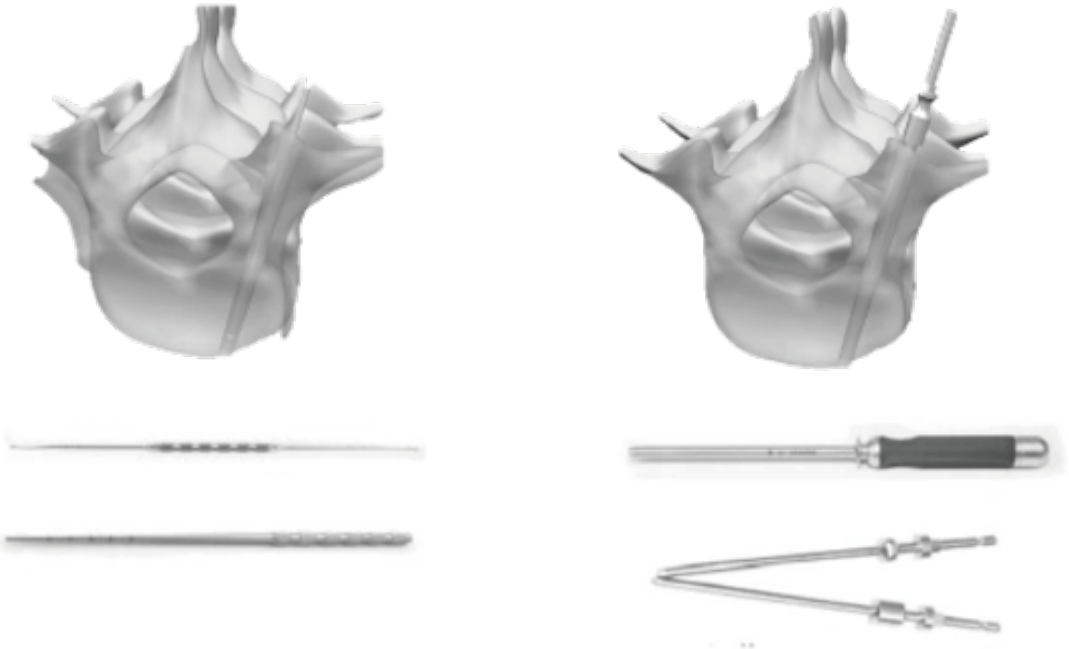
I. Open pedicle

1. Awl can be used establish an opening to the pedicle
2. Pedicle probe is bored through the pedicle and into the verterbral body 50%-80%. The scale on the pedicle probe can indicate the drilling depth and can also be used as the basis for the length of the screw.



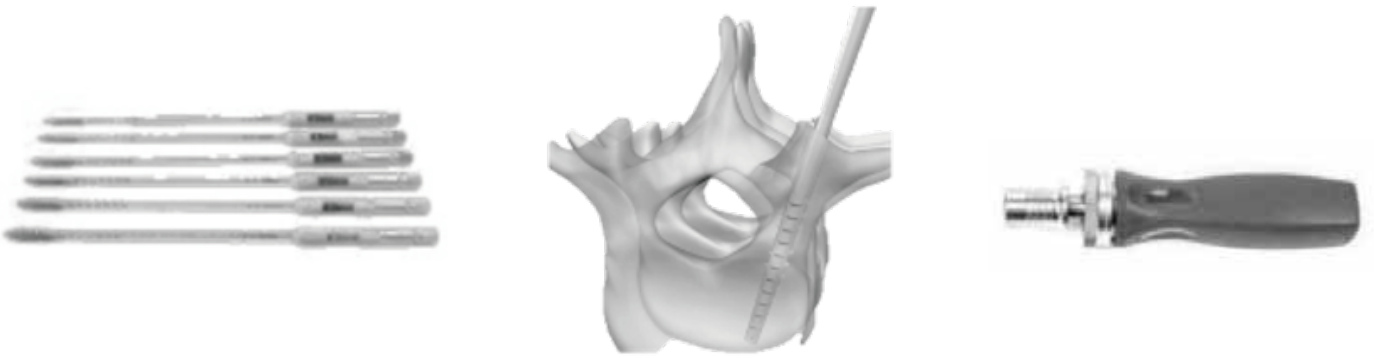
II. Determine screw length

1. All four walls of the pedicle can be palpated with a probe to ensure that the walls of the pedicle have not been penetrated, and measure to determine screw length
2. Use the position pin to verify the position and direction of the canal. Insert the position pin, and determine whether the screw hole is suitable through X-ray or fluoroscopy. The cylindrical and ball type position pin are used to distinguish left and right.



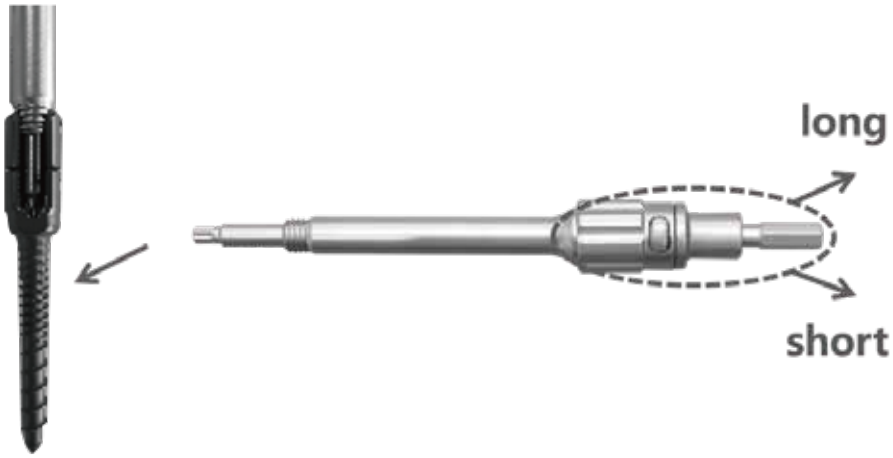
III. Tap the pedicle

The appropriate diameter tap with ratchet handle is inserted through the pedicle hole, and double head straight holt probe can be used to ensure that threaded hole have not been penetrated.



IV. Screw insertion

Adjust the position of the screwdriver through the button according to the length of the screw head. Place the screwdriver tip firmly into the star recess of the screw,twist the screwdriver into the head of screw until tightened and the poly-axial screw without oscillation, then start screw insertion.



- The button locking device has two positions, far and near side
- Far side used for short screw
- Near side used for long tail screw

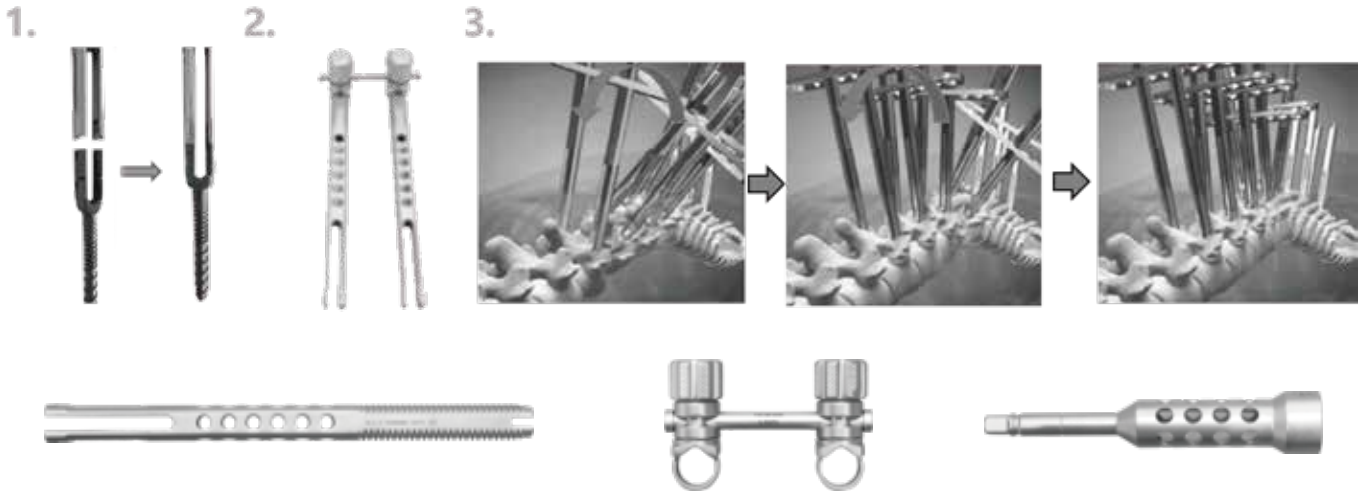
V(a). Scoliosis correction - derotation

1.Derotation

①Connect the pedicle screw holder with the implanted screw;

②Install the connector along the top of the holder;

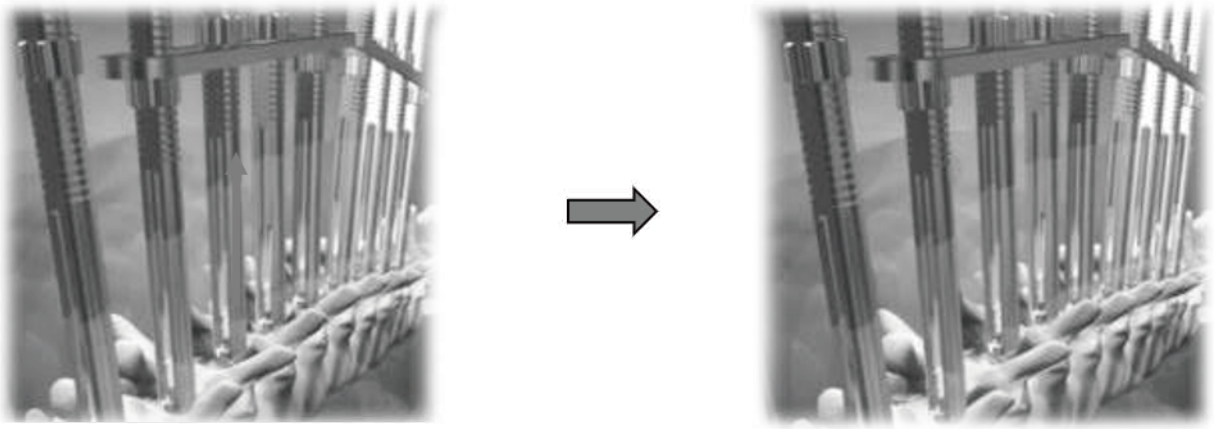
③Use sleeve wrench to lock it, perform a derotation operation, and correct the curved part.



V(a). Scoliosis correction - reduction

2. Reduction

Remove the connector, use the spondylolisthesis reduction plate with Spondylolisthesis reduction ball nut, and pull the vertebral body.

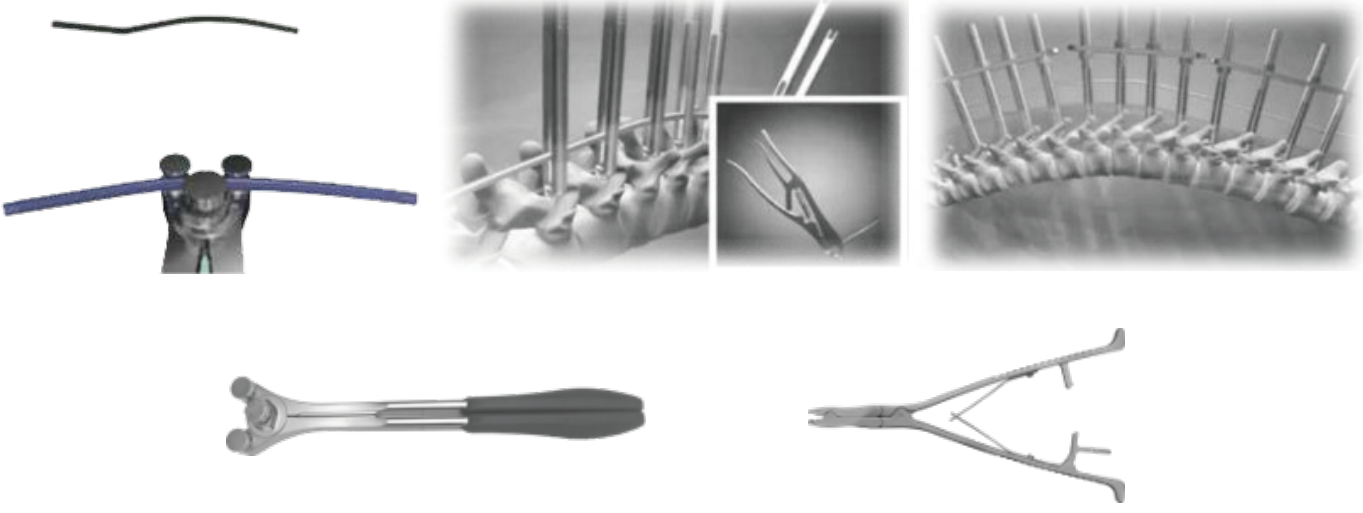


V(a). Install fixing rod

3. Install the fixing rod

① Determine the contour and length of the rod using a template, and use rod bending forcep to pre-bend the fixed rod;

② Use Rod Holder to hold the fixed rod for installation and adjust the angle; The plug screwdriver holds setscrew and preloads it.



V(a). Press and lock the rod

4. Final locking

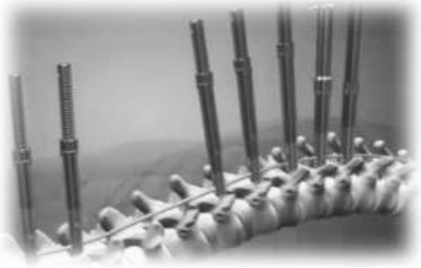
① Install rod pusher, use it to press the fixing rod once seated;

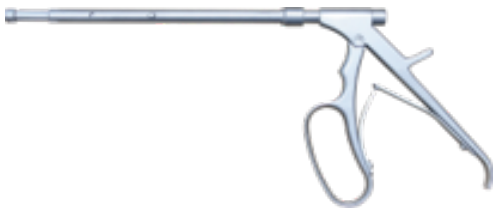
② Use the plug scewdriver to hold the break-off setscrew, and lock it with final locking screwdriver;

③ use the unlocker to unlock.

1.

2.

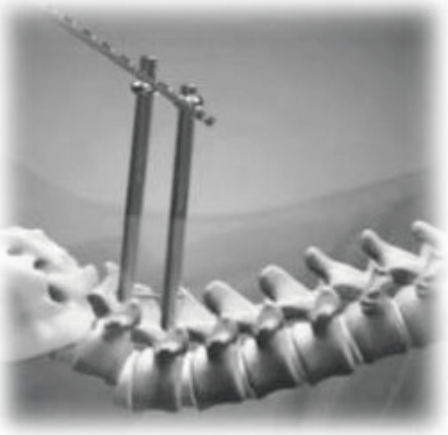


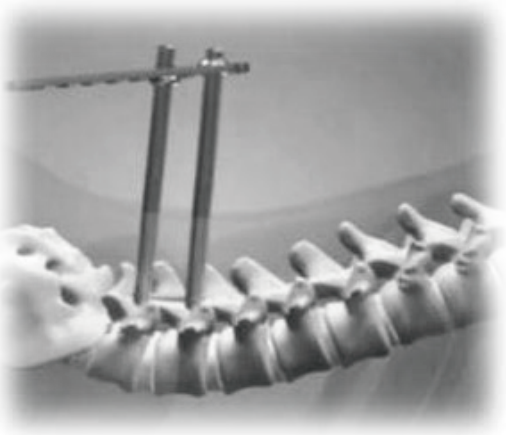


3.

V(b). Spondylolisthesis Reduction

If Spondylolisthesis reduction is required during the operation, use Spondylolisthesis reduction plate with Spondylolisthesis reduction ball nut for cooperation (as shown in figure below), then use fixing rod to connect and lock.





IMPLANTS

Short Poly-axial Screw (Titanium)

Product Code	Diameter(mm)	Length(mm)
11276-030	ϕ4.0	30
11276-035		35
11276-040		40
11276-045		45
11276-130	ϕ4.5	30
11276-135		35
11276-140		40
11276-145		45
11276-230	ϕ5.0	30
11276-235		35
11276-240		40
11276-245		45
11276-330	ϕ5.5	30
11276-335		35
11276-340		40
11276-345		45
11276-350		50
11276-430	ϕ6.0	30
11276-435		35
11276-440		40
11276-445		45
11276-450		50
11276-455		55
11276-530	ϕ6.5	30
11276-535		35
11276-540		40
11276-545		45
11276-550		50
11276-555		55
11276-630	ϕ7.0	30
11276-635		35
11276-640		40
11276-645		45
11276-650		50
11276-655		55
11276-730	ϕ7.5	30
11276-735		35
11276-740		40
11276-745		45
11276-750		50
11276-755		55

Long Poly-axial Screw (Titanium)

Product Code	Diameter(mm)	Length(mm)
11277-030	ϕ4.0	30
11277-035		35
11277-040		40
11277-045		45
11277-130	ϕ4.5	30
11277-135		35
11277-140		40
11277-145		45
11277-230	ϕ5.0	30
11277-235		35
11277-240		40
11277-245		45
11277-330	ϕ5.5	30
11277-335		35
11277-340		40
11277-345		45
11277-350		50
11277-430	ϕ6.0	30
11277-435		35
11277-440		40
11277-445		45
11277-450		50
11277-455		55
11277-530	ϕ6.5	30
11277-535		35
11277-540		40
11277-545		45
11277-550		50
11277-555		55
11277-630	ϕ7.0	30
11277-635		35
11277-640		40
11277-645		45
11277-650		50
11277-655		55
11277-730	ϕ7.5	30
11277-735		35
11277-740		40
11277-745		45
11277-750		50
11277-755		55

Short Mono-axial Screw(III) (Titanium)

Product Code	Diameter(mm)	Length(mm)
11274-030	ϕ4.0	30
11274-035		35
11274-040		40
11274-045		45
11274-050		50
11274-055		55
11274-130	ϕ4.5	30
11274-135		35
11274-140		40
11274-145		45
11274-150		50
11274-155		55
11274-230	ϕ5.0	30
11274-235		35
11274-240		40
11274-245		45
11274-250		50
11274-255		55
11274-330	ϕ5.5	30
11274-335		35
11274-340		40
11274-345		45
11274-350		50
11274-355		55
11274-430	ϕ6.0	30
11274-435		35
11274-440		40
11274-445		45
11274-450		50
11274-455		55
11274-460		60
11274-465		65
11274-530	ϕ6.5	30
11274-535		35
11274-540		40
11274-545		45
11274-550		50
11274-555		55
11274-560		60
11274-565		65
11274-630	ϕ7.0	30
11274-635		35
11274-640		40
11274-645		45
11274-650		50
11274-655		55
11274-660		60
11274-665		65

Long Mono-axial Screw(II) (Titanium)

Product Code	Diameter(mm)	Length(mm)
11275-030	ϕ4.0	30
11275-035		35
11275-040		40
11275-045		45
11275-050		50
11275-055		55
11275-130	ϕ4.5	30
11275-135		35
11275-140		40
11275-145		45
11275-150		50
11275-155		55
11275-230	ϕ5.0	30
11275-235		35
11275-240		40
11275-245		45
11275-250		50
11275-255		55
11275-330	ϕ5.5	30
11275-335		35
11275-340		40
11275-345		45
11275-350		50
11275-355		55
11275-430	ϕ6.0	30
11275-435		35
11275-440		40
11275-445		45
11275-450		50
11275-455		55
11275-460		60
11275-465		65
11275-530	ϕ6.5	30
11275-535		35
11275-540		40
11275-545		45
11275-550		50
11275-555		55
11275-560		60
11275-565		65
11275-630	ϕ7.0	30
11275-635		35
11275-640		40
11275-645		45
11275-650		50
11275-655		55
11275-660		60
11275-665		65

Fixing Rod IV (Titanium)

Product Code	Diameter(mm)	Length(mm)
11314-050	ϕ5.5	50
11314-060		60
11314-070		70
11314-080		80
11314-090		90
11314-100		100
11314-110		110
11314-120		120
11314-130		130
11314-140		140
11314-150		150
11314-160		160
11314-170		170
11314-180		180
11314-190		190
11314-200		200
11314-300		300
11314-400		400
11314-500		500

Transverse Connector III (Titanium)

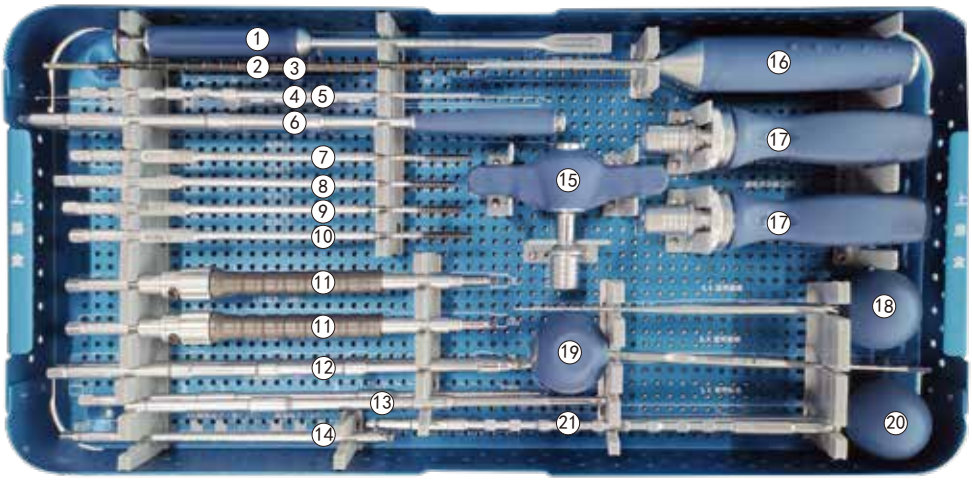
Product Code	Diameter(mm)	Length(mm)
11333-060	ϕ5.5	60mm
11333-065		65mm
11333-070		70mm
11333-075		75mm
11333-080		80mm

Transverse Connector IV (Titanium)

Product Code	Diameter(mm)	Length(mm)
11334-060	ϕ5.5	60mm
11334-065		65mm
11334-070		70mm

INSTRUMENTS

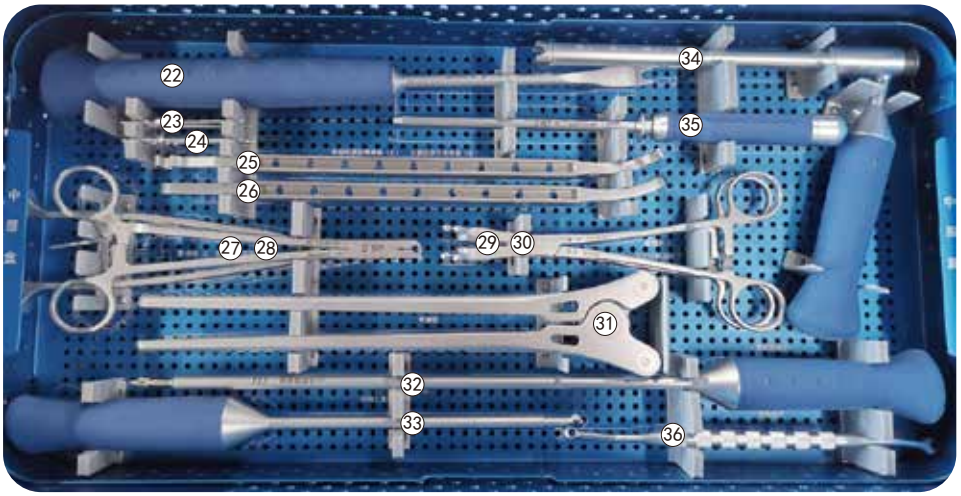
1502999901 S7 Spinal System Instrument Set A



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1502901300	Reduction screw breaker	5.5	1
2	1502901100	Template	short	1
3	1502901200	Template	long	1
4	1502330300	Staight holt probe (Double head)		1
5	1502200100	straight holt probe (Thick)		1
6	1502901000	Single head plug screwdriver	T27	2
7	1502900900	Tap	5	1
8	1502900800	Tap	5.5	1
9	1502900700	Tap	6	1
10	1502900600	Tap	6.5	1
11	1502900500	Screwdriver for inserting		2
12	1502900400	Screwdriver for final locking	T27	2
13	1502900300	T27 screwdriver	T27	2
14	1502900100	T25 screwdriver	T25	1
15	1502701600	Quick coupling handle(T)		1
16	1502704600	Awl		1
17	1503302300	Ratchet handle		2
18	1502700400	2.5 straight awl	2.5	1
19	1502700200	3.2 straight awl	3.2	1
20	1502700300	3.5 curved awl	3.5	1
21	1502900200	Plug screwdriver	T27	1

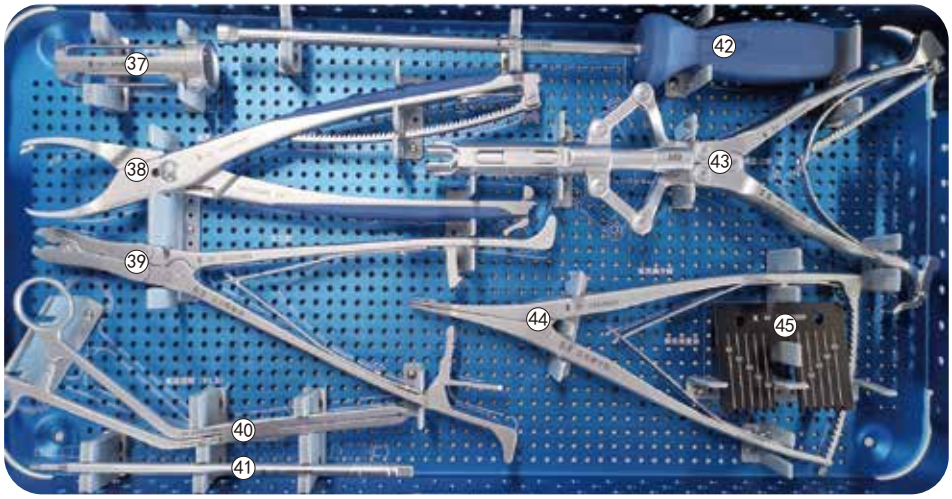
1502999901 S7 Spinal System Instrument Set A



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
22	1502702500	Rod pusher	5.5	1
23	1502700700	Cylindrical type position pin	SW2.5	4
24	1502700800	Ball type position pin	SW2.5	4
25	1502702400	Sagittal plane rod bender	5.5, right	1
26	1502702300	Sagittal plane rod bender	5.5, left	1
27	1502301500	Rod holder	5.5	1
28	1502901800	Rod rotator (Inserting)	5.5	1
29	1502901700	Swing forceps	5.5	1
30	1502901600	Swing forceps for reduction screws	5.5	1
31	1502601700	Rod bender		1
32	1502901500	Screwdriver for pre locking	T27	1
33	1502901400	Alignment tool	5.5	1
34	1502901900	Counter torque	5.5	1
35	1502700600	Screwdriver for position pin	SW2.5	1
36	1502703300	Rod rotator	SW5.0	1

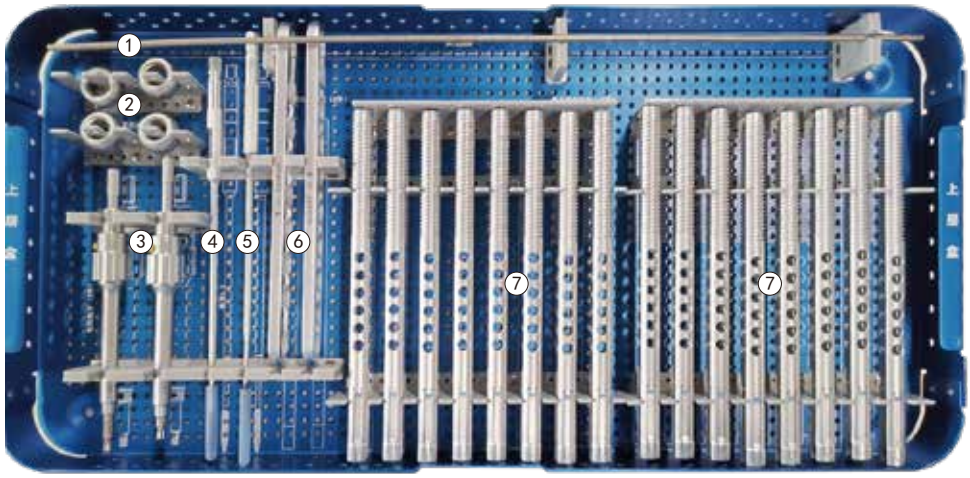
1502999901 S7 Spinal System Instrument Set A



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
37	150.2902300	Extension sleeve	5.5	1
38	1502703100	Curved compressor		1
39	1502902000	Locking plier	5.5	1
40	1502704500	Forceps for crosslink（Φ3.0）	Φ3.0	1
41	1502704300	Screwdriver for crosslink	SW3.5	1
42	1502704400	Screwdriver for crosslink final locking	SW8.0	1
43	1502902200	Recustion forcep	5.5	1
44	1502902100	Curved distractor	5.5	1
45	1502704200	Gauge for crosslink		1
46	1502900001	Instrument Case		1

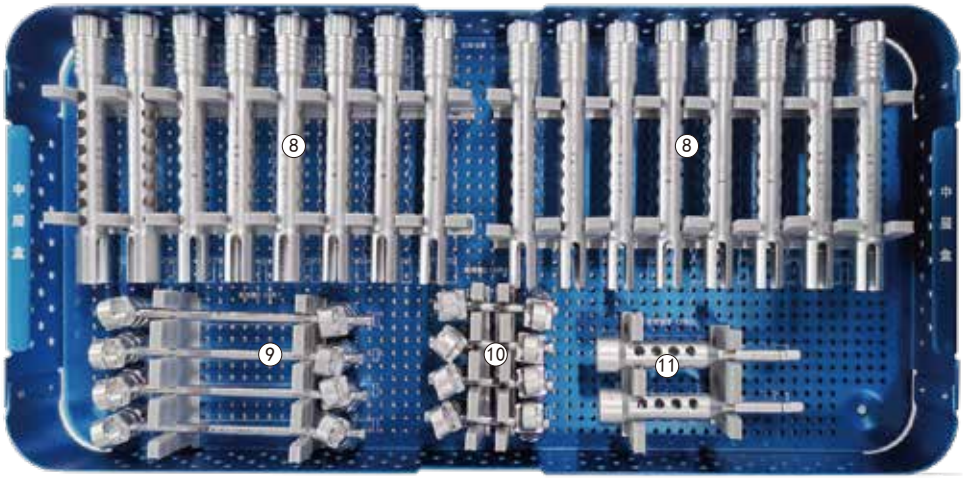
1502999902 S7 Spinal System Instrument Set B



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1502903000	50cm template		1
2	1502903100	Spondylolisthesis reduction ball nut		4
3	1502903200	Screwdriver with powerdrill		2
4	1502903300	Tap	4.5	1
5	1502903400	Tap	4	1
6	1502903500	Spondylolisthesis reduction plate		2
7	1502903600	Pedicle holder	5.5	16

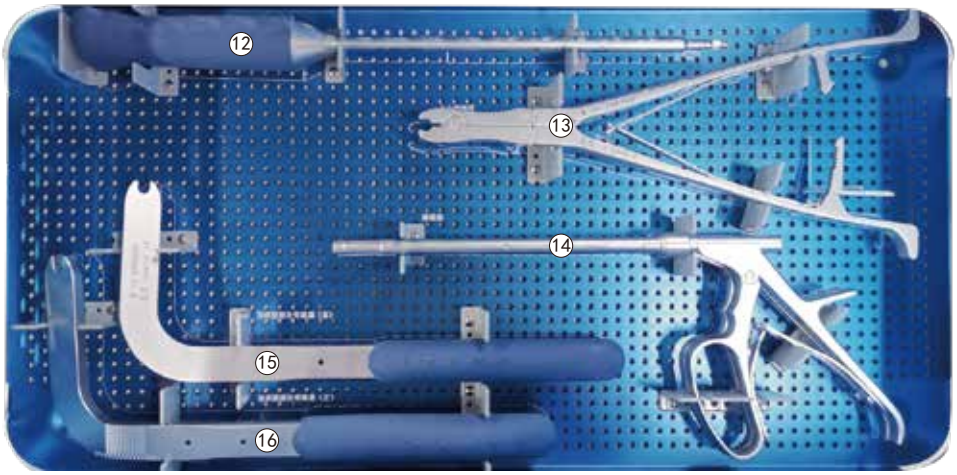
1502999902 S7 Spinal System Instrument Set B



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
8	1502903700	Sleeve for pressing the rod		16
9	1502903800	Connector 1		4
10	1502903900	Connector 2		4
11	1502904000	Sleeve wrench		2

1502999902 S7 Spinal System Instrument Set B



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
12	1502904100	Screwdriver for pre-locking	short	1
13	1502904200	Rod torator		1
14	1502904300	Unlocker		2
15	1502904500	Coronal plane rod bender	Right	1
16	1502904400	Coronal plane rod bender	Left	1
17	1502900002	Instrumrnt Case		1

H 7™

5.5 Series

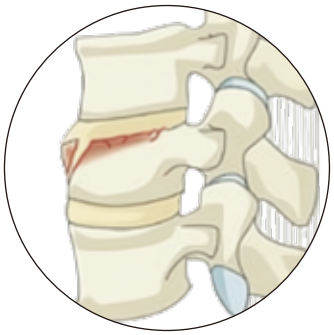
Advantage

- Ability to accept Φ5.5mm rods.
- Flexible move in 360° direction.
- Corrugated spherical head, provide better angular stability.
- Multi-type extended tap design.
- Double-lead thread pattern for faster insertion and increased pullout strength.
- Serrated saddle locking block, prevent the loosening of screw.

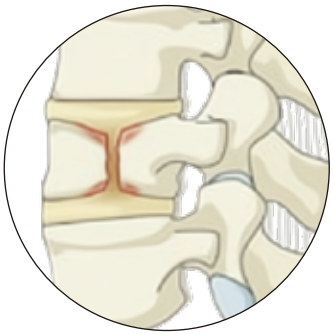
WASTONspine

INDICATION

Minor nonstructural fractures



Wedge-compression



Split

Transosseous tension band disruption/Chance fracture

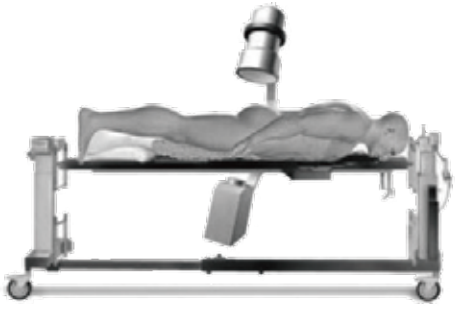
Posterior tension band disruption

Incomplete burst

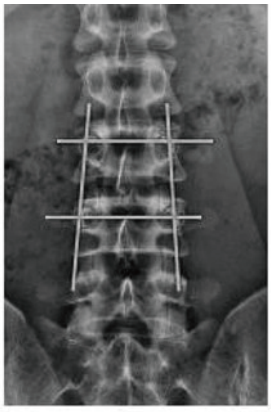
Complete burst

SURGICAL TECHNIQUE

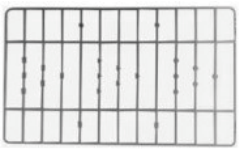
1、 Patient position / Locating and Mark



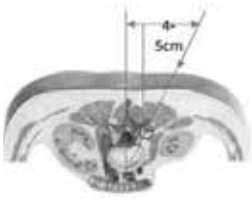
Prone position



Intersection of pedicle outer edge and transverse process midline

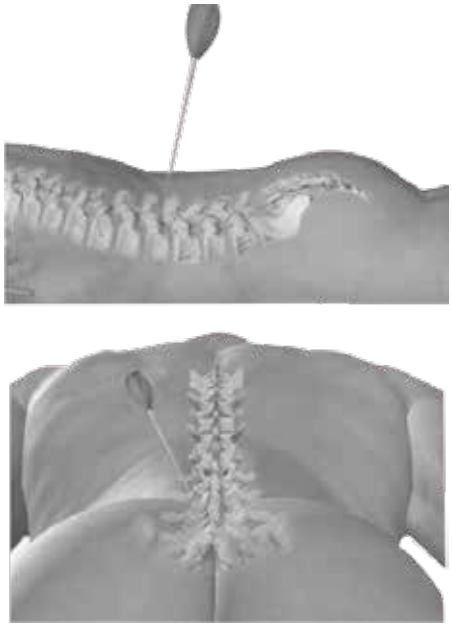


Net plate

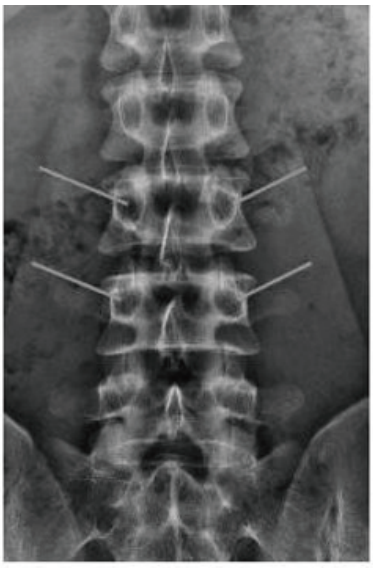


Mark

2、 Puncture / Insert guide pin



Puncture

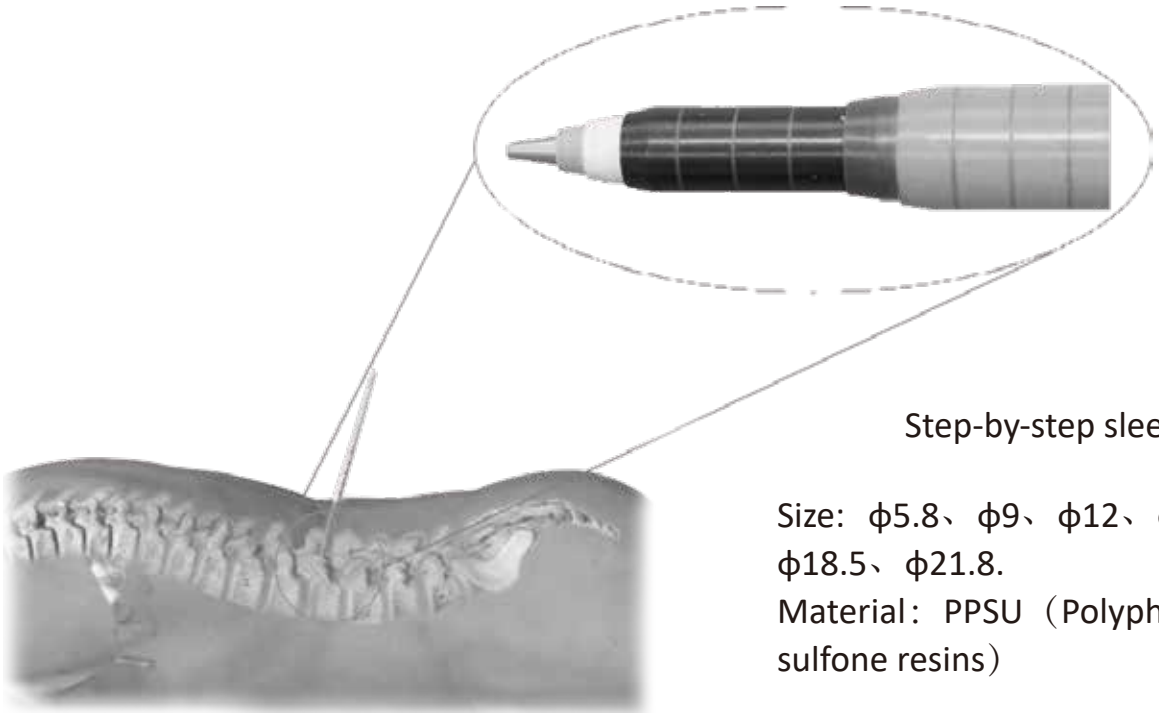


Insert guide pin

Puncture device

Guide pin

3、 Expand step by step

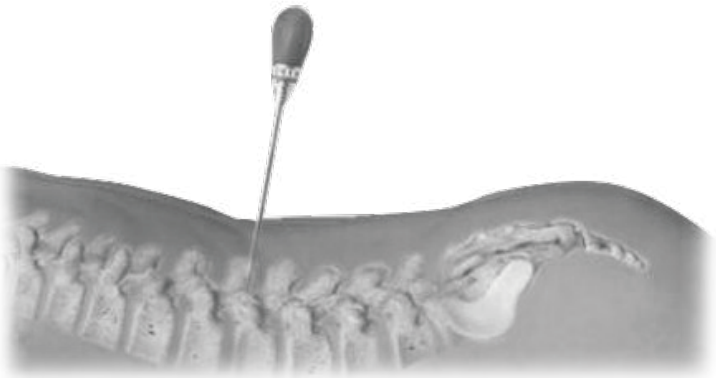


Step-by-step sleeve

Size: ϕ5.8、ϕ9、ϕ12、ϕ15.2、ϕ18.5、ϕ21.8.
Material：PPSU（Polyphenylene sulfone resins）

Expand the skin by inserting the step-by-step sleeve.

4、Regular opening、tapping

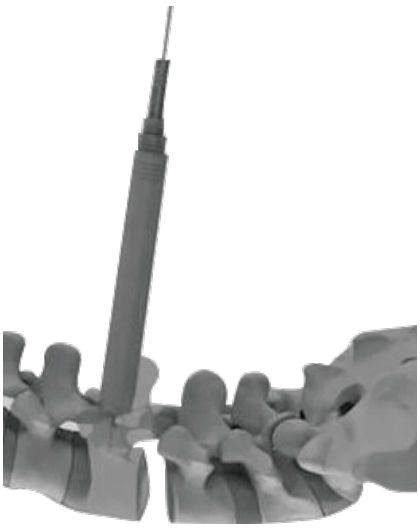


Tap after piercing bone with the awl along the guide pin

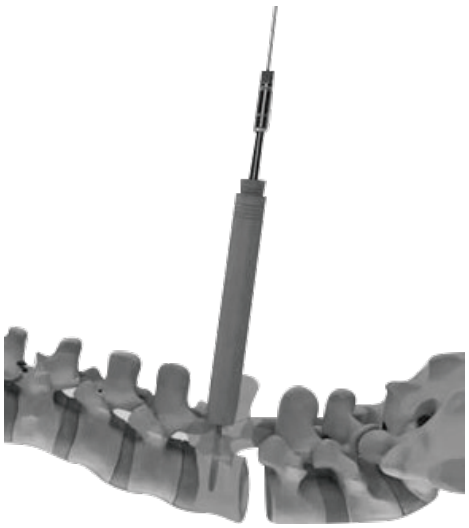
Hollow Tap ϕ4.5-ϕ7.5　　Hard probe

Ratchet handle ×2

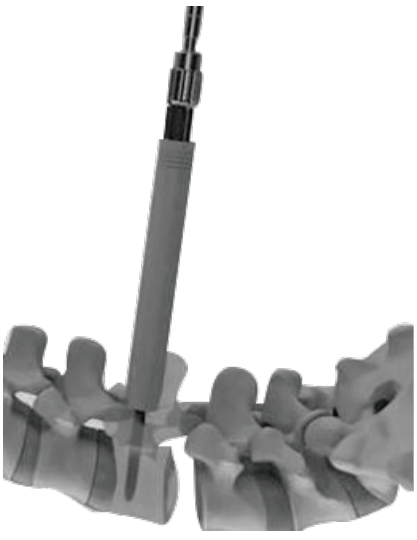
Choose whether to complete tapping and screw imbedding in the sleeve according to the surgeon's habit.



Insert the step-by-step sleeve along the guide pin



Tap

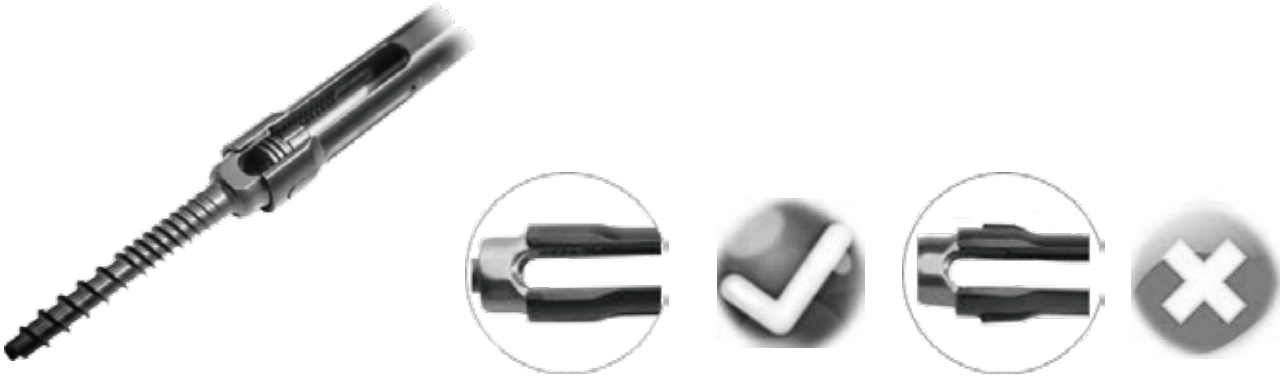


Insert mini invasive screw

5、Assemble the screw and extension sleeve

Arrow indicates the groove direction.

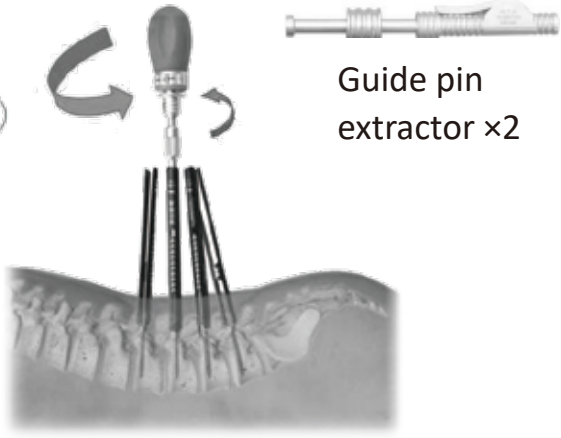
Align the screw tail with the top of the extension sleeve.



A "click" sound indicates successful insertion.

6、Install the screw inserter and implant screws

Put the screw inserter head into the hexalobular socket of the screw along the extension sleeve, tighten the screw.



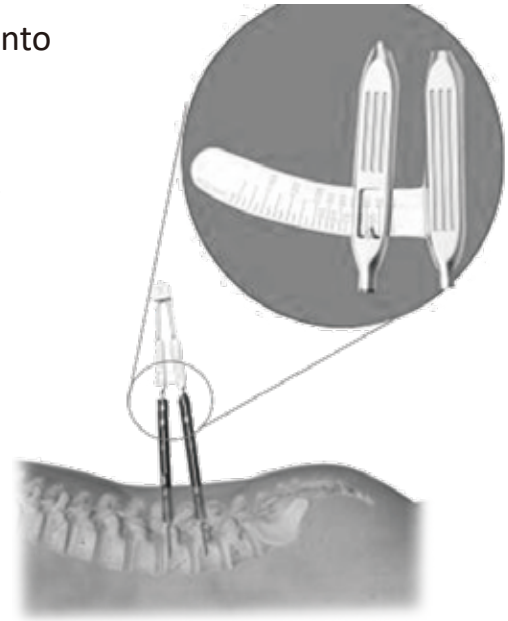
Guide pin extractor ×2

Implant the screw along the guide wire with ratchet handle

Screw inserter ×2

7、Measure the fixing rod

After inserting the gauge into the extension guide, the indicator reading is the required fixing rod length.



Crossed gauge

Parallel gauge

8、Rod bending and installation

The screw provides a large swing angle.

Rod bending forcep

The slot locks the rod to ensure that the rod is bent in the same plane.

Rod bender level 4 curvature

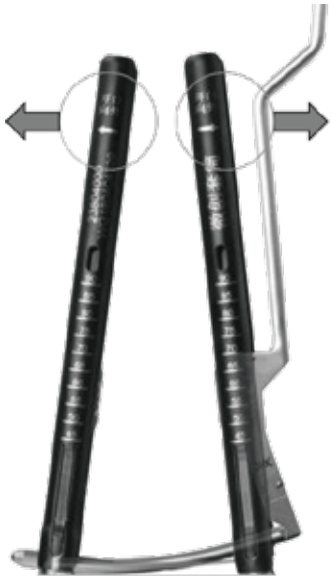
Implant inserter

Screwdriver T25

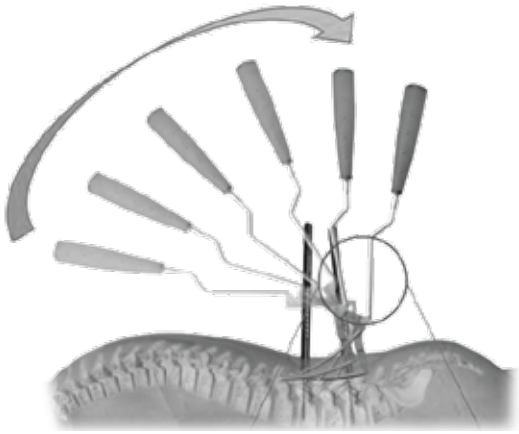
10、 Rod fixation

1、 Adjust the extension sleeves and make their front grooves at vertical arrangement.

2、 Put the rod into the screw tail, turn the handle, move the tip of the rod slowly along the bone surface, gradually rotate the stick to a horizontal position.



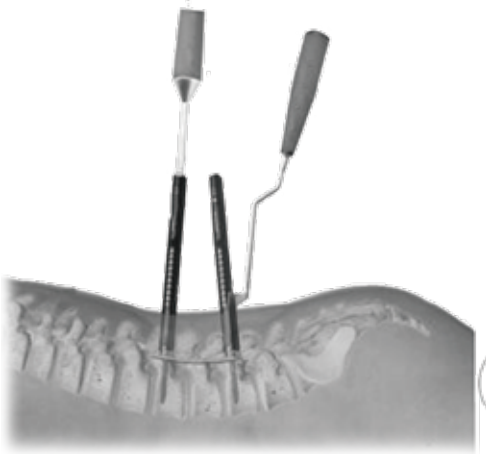
Arrows point outward



11、 Pre-locking

1. Twist the setscrew into the screw tail one by one with self-holding screwdriver(T27), then pre-lock it with the screwdriver (T27).

2. Unlock the implant inserter and take out.

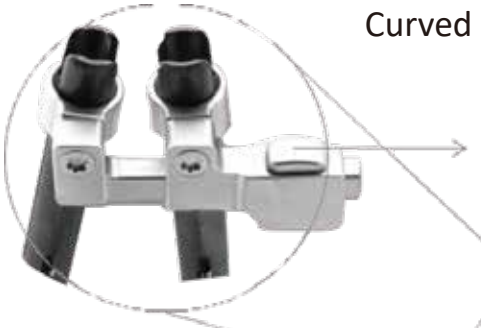


Screwdriver,
self-holding T27 ×2

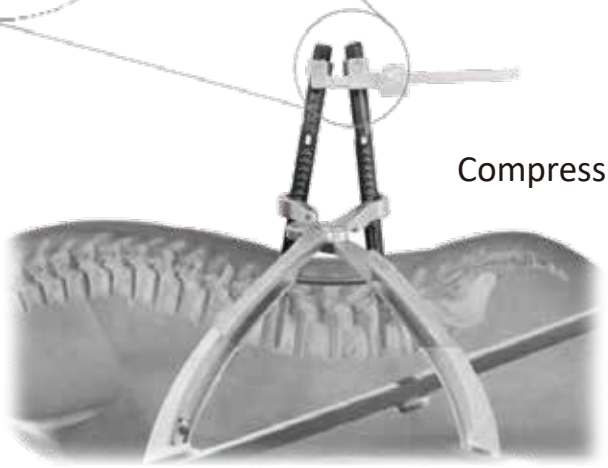
Screwdriver,
pre-locking T27

12、Compression and distraction-1

1、The curved screw connector is applied to the curved rod used in thoracic and lumbar vertebrae. There's a button at the end to adjust the distance of the extension sleeve.
2、Select one side as the fixed side, loosen the setscrew with the screwdriver reversing a half turn on the other side.



Curved screw connector ×2



Compress

compression forcep

13、Compression and distraction-2

1、The parallel screw connector is applied to the straight rod used in thoracic and lumbar vertebrae. Slide in the connector, tighten the connector nut with the wrench if needed.

Distracting forcep

Distracting forcep (long)

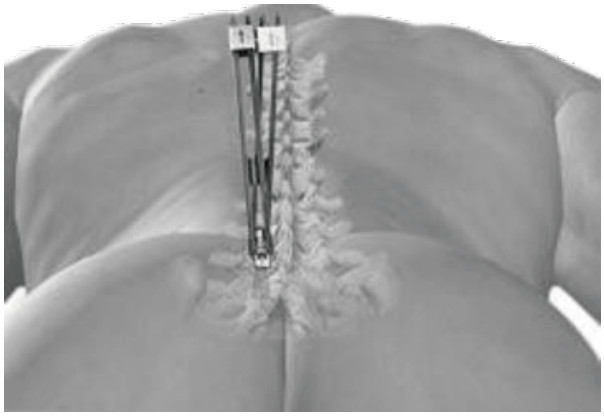
Parallel screw connector ×2

Wrench (parallel connection)

3、Distract close to the screw connector.

14、Compression and distraction-3

1、The crossed connecting device is applied to the lumbosacral with larger arc. Up to 3 centrums can be connected.

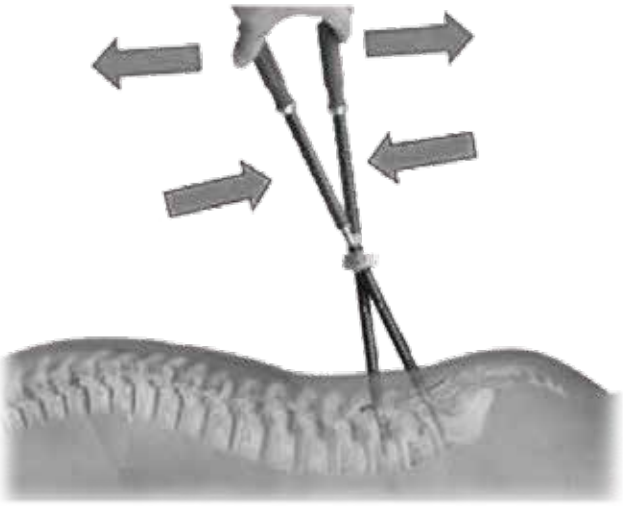


Compression and distraction-3

1、Loosen part of the setscrew with the pre-locking screwdriver reversing a half turn. Put the guide block in the extension sleeve end, connect its side protrusion with the round hole of another matching guide block.

Crossed connecting device (short)

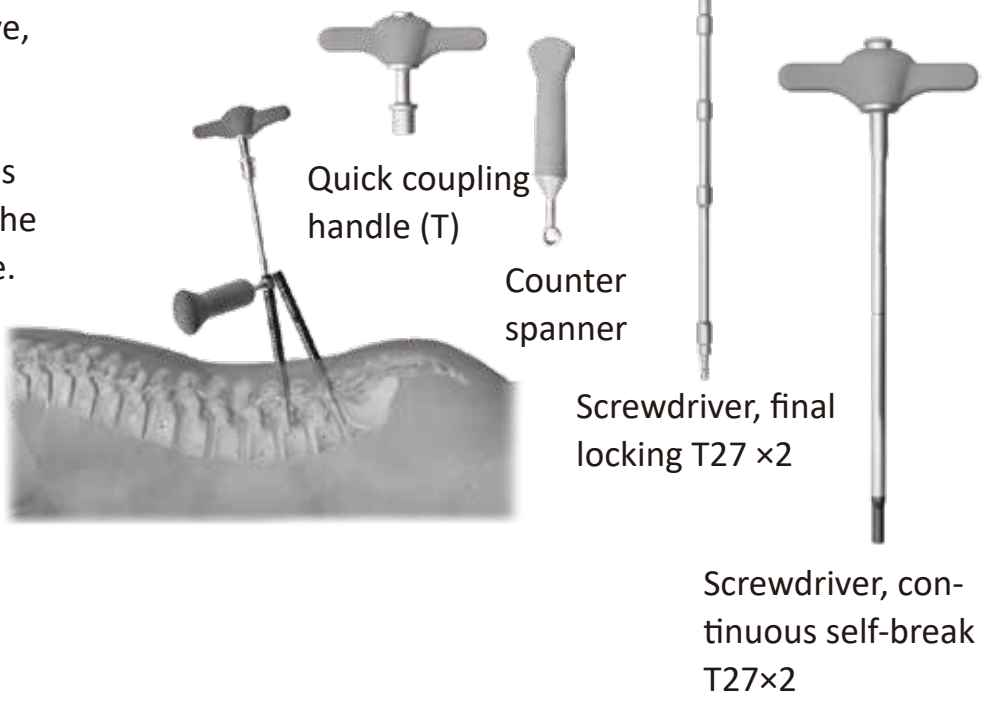
Crossed connecting device (long)



Compression screwdriver T27 ×2

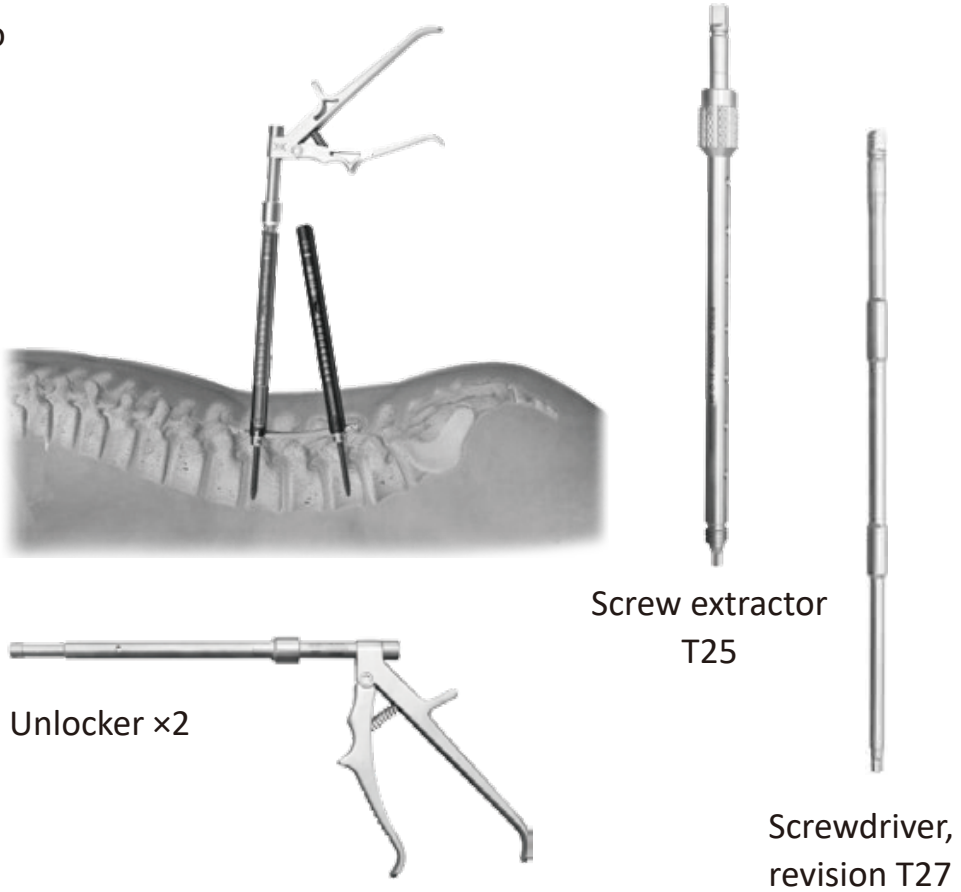
15、Final tightening / Torque span

1、Put the counter spanner in the extension sleeve, screw all the nuts one by one.
2、If using the continuous self-break screwdriver，the setscrews will store inside. Continuous operation improves efficiency.



16、Take out the sleeve and remove the screw

1、Insert the unlocker into the sleeve, confirm the direction and depth, hold tightly, the extension sleeve will be distracted and separated.
Take the extension sleeve out by lifting the unlocker up.



IMPLANTS

Mono-axial Screw (Titanium)

Product Code	Diameter(mm)	Length(mm)
11278-030	ϕ5.0	30
11278-035		35
11278-040		40
11278-045		45
11278-050		50
11278-055		55
11278-130	ϕ5.5	30
11278-135		35
11278-140		40
11278-145		45
11278-150		50
11278-155		55
11278-230	ϕ6.0	30
11278-235		35
11278-240		40
11278-245		45
11278-250		50
11278-255		55
11278-330	ϕ6.5	30
11278-335		35
11278-340		40
11278-345		45
11278-350		50
11278-355		55
11278-430	ϕ7.0	30
11278-435		35
11278-440		40
11278-445		45
11278-450		50
11278-455		55
11278-530	ϕ7.5	30
11278-535		35
11278-540		40
11278-545		45
11278-550		50

Poly-axial Screw (Titanium)

Product Code	Diameter(mm)	Length(mm)
11279-030	ϕ5.0	30
11279-035		35
11279-040		40
11279-045		45
11279-130	ϕ5.5	30
11279-135		35
11279-140		40
11279-145		45
11279-150		50
11279-230	ϕ6.0	30
11279-235		35
11279-240		40
11279-245		45
11279-250		50
11279-255		55
11279-330	ϕ6.5	30
11279-335		35
11279-340		40
11279-345		45
11279-350		50
11279-355		55
11279-430	ϕ7.0	30
11279-435		35
11279-440		40
11279-445		45
11279-450		50
11279-455		55
11279-530	ϕ7.5	30
11279-535		35
11279-540		40
11279-545		45
11279-550		50
11279-555		55

Fixing Rod IV (Titanium)

Product Code	Diameter(mm)	Length(mm)
11281-040	ϕ5.5	40
11281-045		45
11281-050		50
11281-055		55
11281-060		60
11281-065		65
11281-070		70
11281-075		75
11281-080		80
11281-085		85
11281-090		90
11281-095		95
11281-100		100
11281-105		105
11281-110		110
11281-115		115
11281-120		120
11281-125		125
11281-130		130
11281-135		135
11281-140		140
11281-145		145
11281-150		150

Fixing Rod IV (Titanium)

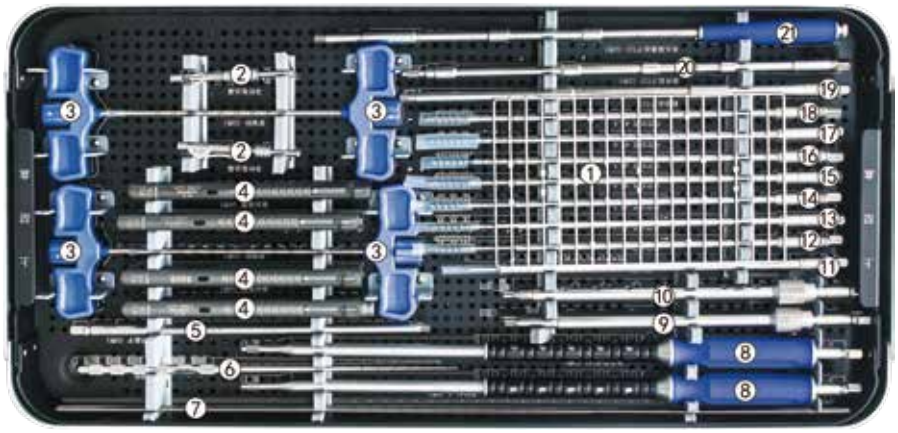
Product Code	Diameter(mm)	Length(mm)
11280-040	ϕ5.5	40
11280-045		45
11280-050		50
11280-055		55
11280-060		60
11280-065		65
11280-070		70
11280-075		75
11280-080		80
11280-085		85
11280-090		90

Break-off Setscrew (Titanium)

Product Code	Diameter(mm)	Length(mm)
11282-000	/	/

INSTRUMENTS

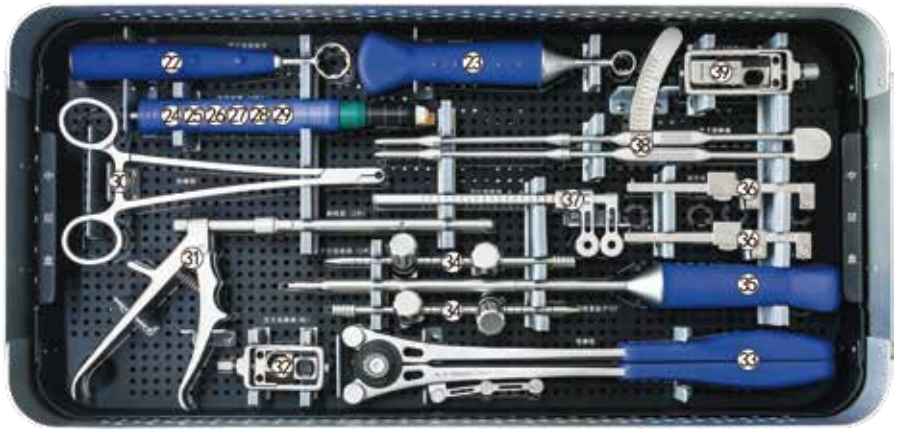
1502999903 H7 Spinal System Instrument Set



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1502909200	Net plate		1
2	1502907000	Guide wire extractor		2
3	1502907300	Puncture pin		4
4	1502907400	Minimally invasive guide		8
5	1502906400	Adjusting screwdriver		1
6	1502906300	Hard probe		1
7	1502906200	Guide wire	Ø1.5	8
8	1502905800	Compression screwdriver	T27	2
9	1502905500	Screw inserter		2
10	1502905400	Screwdriver		1
11	1502906100	Open awl		1
12	1502909300	Hollow tap	Ø4.5	1
13	1502907500	Hollow tap	Ø5.0	1
14	1502907600	Hollow tap	Ø5.5	1
15	1502907700	Hollow tap	Ø6.0	1
16	1503907800	Hollow tap	Ø6.5	1
17	1502907900	Hollow tap	Ø7.0	1
18	1502909400	Hollow Tap	Ø7.5	1
19	1500907100	Refurbishment screwdriver	T27	1
20	1502908000	Final screwdriver		2
21	1502906000	Single end plug screwdriver		2

1502999903 H7 Spinal System Instrument Set



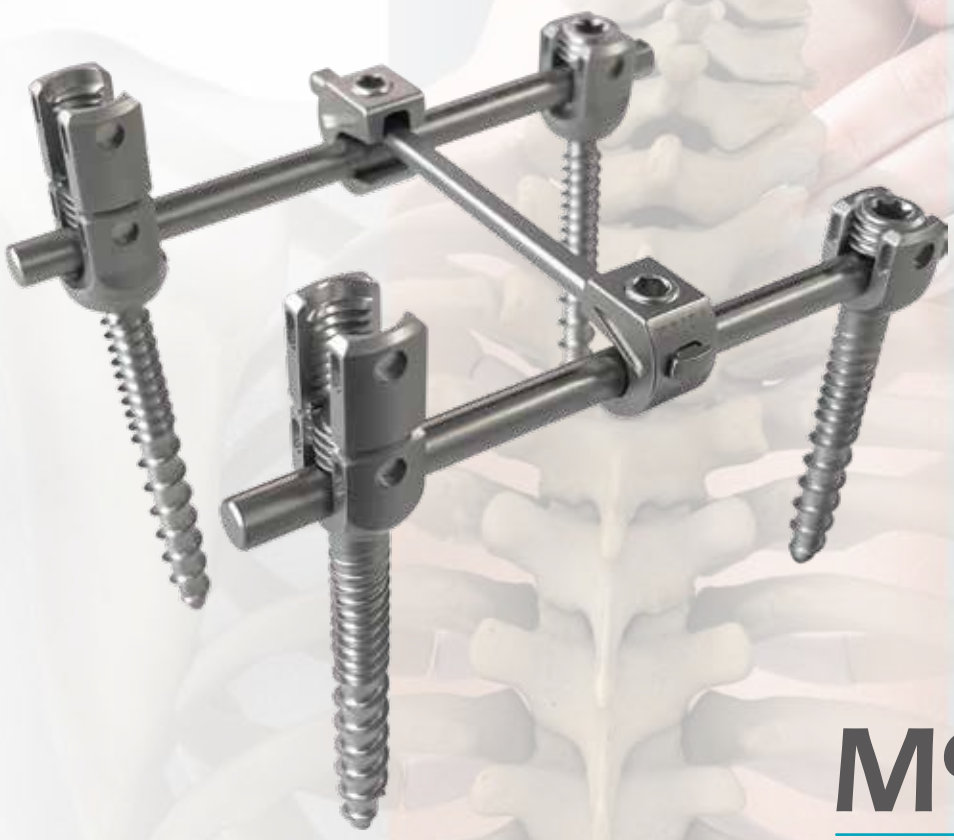
TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
22	1502905300	Parallel		1
23	1502905200	Counter spanner		1
24	1502908100	Multilayer sleeve	Ø5.8	2
25	1502906500	Multilayer sleeve	Ø9.0	2
26	1502906600	Multilayer sleeve	Ø12.0	2
27	1502906700	Multilayer sleeve	Ø15.2	2
28	1502906800	Multilayer sleeve	Ø18.5	2
29	1502906900	Multilayer sleeve	Ø21.8	2
30	1502902800	Rod holder (5.5)		1
31	1502905000	Unlocker		2
32	1502908700	Crossed connecting device	Short	1
33	1502905600	Rod bending forcep		1
34	1502908800	Parallel connecting device		2
35	1502908200	Pre-locking screwdriver	T27	1
36	1502908400	Curved connecting device		2
37	1502907200	Parallel gauge		1
38	1502908500	Crossed gauge		1
39	1502908600	Crossed connecting device	Long	1

1502999903 H7 Spinal System Instrument Set

TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
40	1502905100	Minimally invasive rod insertion device		2
41	1502908300	Continuous self breaking screwdriver		2
42	1502902600	Quick coupling handel (T-shape)		1
43	1502908900	Distracting forcep (Long)	Long	1
44	1502909000	Distracting forcep		1
45	1502905700	Mini ratchet handel		2
46	1502905900	Compression forcep		1
47	1502909100	Instrument case		1



M9-la™

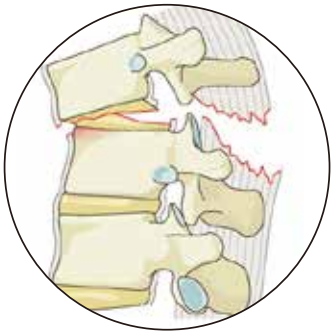
5.5 Series

Advantage

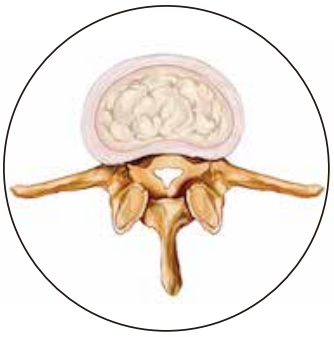
- Optimized fracture design, won't irritate the soft tissue.
- Flexible angle can be adjusted for intraoperative adjustment.
- Increased ball head's diameter & surface texture improve the friction.
- Double-line variable pitch, enhance the resistance.
- Taper thread makes screw stronger and avoid break.
- Negative angle design structure, accuracy is higher, sliding teeth risk is lower.

WASTONspine

INDICATION

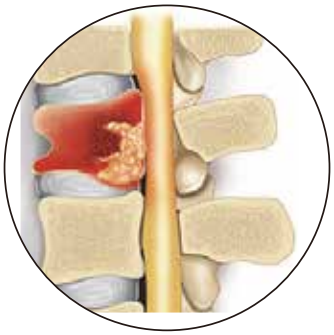


Fracture or dislocation



Spinal stenosis

Degenerative disc disease



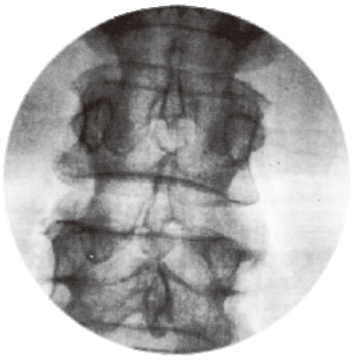
Tumor, tuberculosis

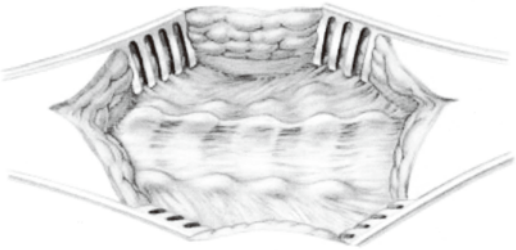
SURGICAL TECHNIQUE

Step1 Preliminary

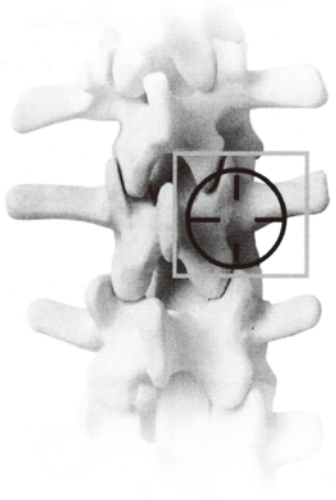
• The patient is placed on the operating table in the prone position. A spine surgery frame should be used which will avoid any pressure on the abdomen, there by avoiding vena caval compression.

• The surgical approach is carried out through a standard midline incision to the spinal column over the spinous processes. The incision should be long enough to ensure expose expected. The supraspinous and interspinous ligaments should be preserved. Meticulous subperiosteal exposure of the posterior elements is performed. The paraspinal musculature is detached to the outer margins of transverse processes. When indicated, soft tissue and bony decompression are performed to relieve neurological compression.





Step2 Insert pedicle screw



Step2.1 Identification of the pedicles

The dorsal entry point to the medullary canal of the lumbar pedicle is located at the convergent point of three distinct anatomic structures.

• Middle of the transverse process

• The superior facet

• The pars interarticularis

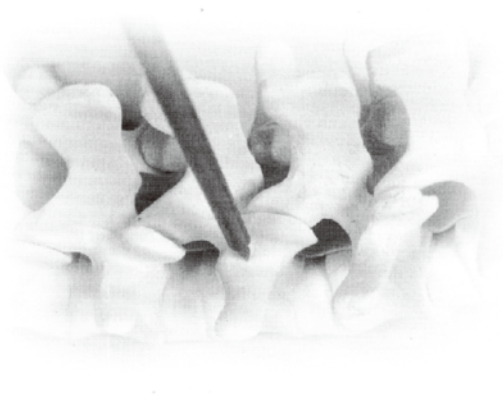
The starting point can also be identified at the intersection of two lines drawn through the middle of the transverse process and the lateral border of the superior articular facet.

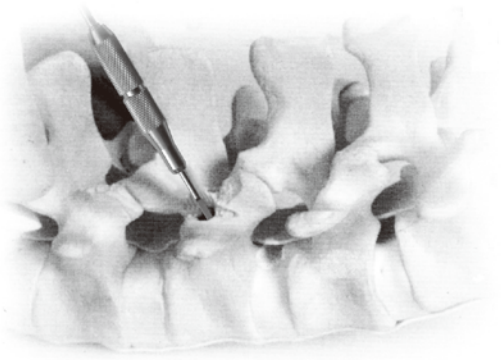
A burr or ronquer may be used to clear away the hard cortical bone at the junction of the facet and transverse process, thereby exposing the cancellous portion of the pedicle.

The starting point in the sacral pedicles is significantly different due to the lack of transverse processes and the presence of the sacral ala. The size and configuration of the S1 pedicle allow the surgeon more flexibility in positioning the bone bolt within the sacrum. The entrance point to the S1 pedicle is caudal and slightly lateral to the superior articular process. The entry point should be in the most caudal portion of the pedicle.

Step2.2 Preparation of the pedicle canal

An Awl or burr can be used establish an opening to the pedicle at this site. A Straight Awl is bored through the pedicle and into the vertebral body 50%~80%• The anteror cortex of the vertebral body should be violated with great caution. The scale on the Straight Awl can tip the drilling depth, and also can determine the depth of the pedicle screw.

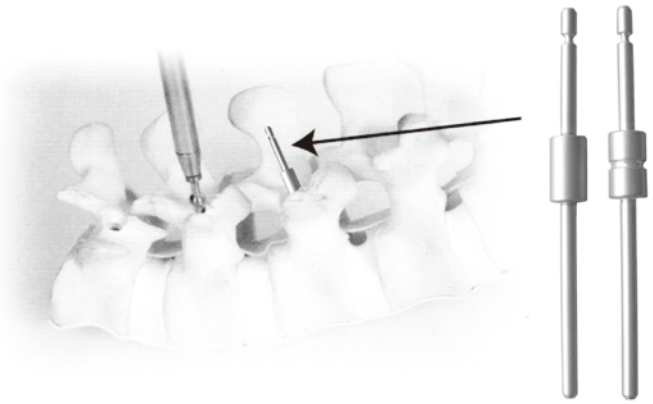




Step2.3 Determining screw length

Having opened the channel of the pedicle, all four walls of the pedicle can be palpated with a Probe to ensure that the walls of the pedicle have not been violatd. A Probe calibrated at 10mm intervals can then be inserted into the vertebral body and the length of the pedicle and vertebral body measured to determine appropriate screw length.

A radiographic Marker is placed through the pedicle and into the vertebral body, and its position within the confines of the pedicle is confirmed with plain radiographs or fluoroscopy. The appropriate length of the screw can also be confirmed on lateral radiographs by referring to the Marker.



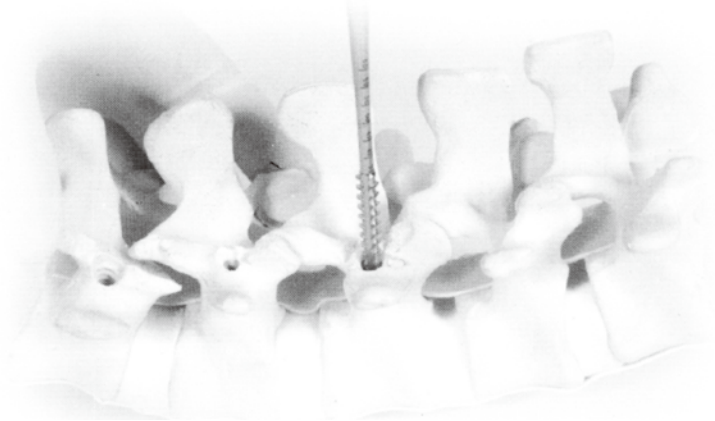
Step2.4 Tapping the pedicles

M9 instumentation offers two taps (4.5mm, 5.5mm) which correspond to the bone screw diameters.

The apropriate diameter tap is inserted through the pedicle and into the vertebral body.

Following this final preparation of the pedicle; a probe can be used to follow the tap threads through the cancellous bone and palpate for any perforations in the pedicle walls.

Note: Tops for reference only.

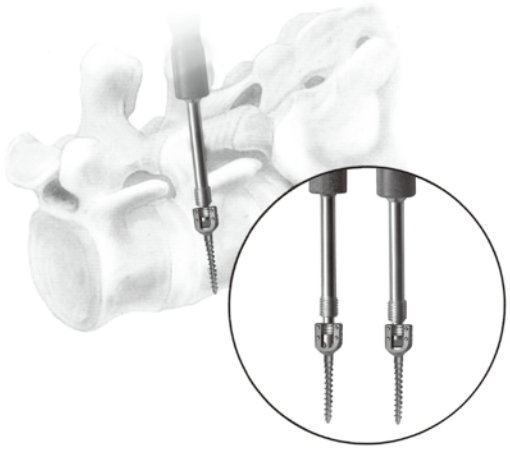


Step2.5 Screw insertion

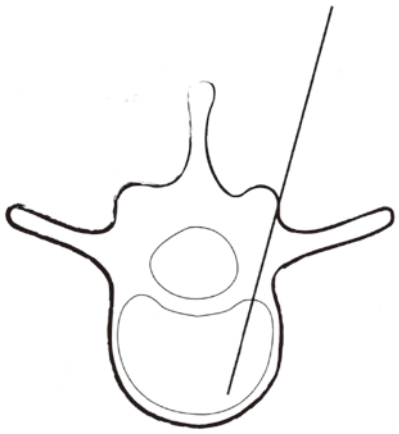
The pedicle screws are sequentially inserted using the Monoaxial/ Mutiaxial Screwdriver. Insert the pedicle screw into the Monoaxial/ Multiaxial Screwdriver and drive into the pedicles by following the previously tapped canal. The pedicle screws should be inserted until the tip of the wrench abuts the bony surface.

Multiaxial Screwdriver Application: The Multiaxial Screwdriver head is three-jaw, place the head of the Multiaxial Screwdriver into The head of the screw slot. Slide the Screwdriver sleeve down into the head of the screw, tightening the thread.

Note: Tightening after the three-jaw head fully inserted into the screw head, otherwise the three-jaw head will be deformation and the operation can not be well performed.



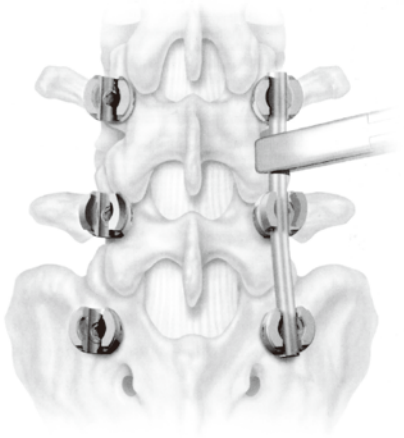
Note: Screw insertion should follow the angle of the pedicle canal.



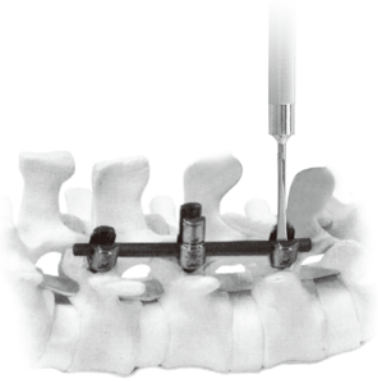
Step 3 Rod insertion

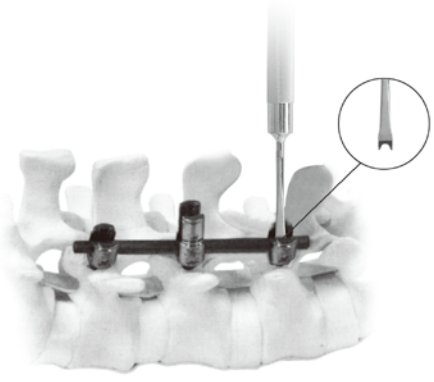
Due to differences in pedicle angles, as measured from the midline (spinous processes), screw position as viewed posteriorly may be malaligned. The Multi Axial Screw may be angled up to 25° medial and lateral to facilitate in the placement of the rod with minimal bending/ contouring.

There are a various length of the rod in M9 System so that the operationg of cutting rods is not necessary. A Rod Template may be used to determine the rod contour needed for construct assembly. The rod may be bent into lordosis using the Rod Bender. The rod does not have to be precisely bent for attachment to the pedicle screws, especially for a single-level fusion. However, bending the rod to an appropriate lordotic curvature lowers the profile of the implants and improves the biomechanics of the construct by reducing the bending moment and thus reducing the stresses on the pedicle screws. A lordotic bend in the rod also allows an element of medial or lateral adjustment on a multi-level construct.



Rod pusher is used to push the rod on the top of the pedicle screw head, the nut is then inserted through the quick screw driver into the head of the pedicle screw.

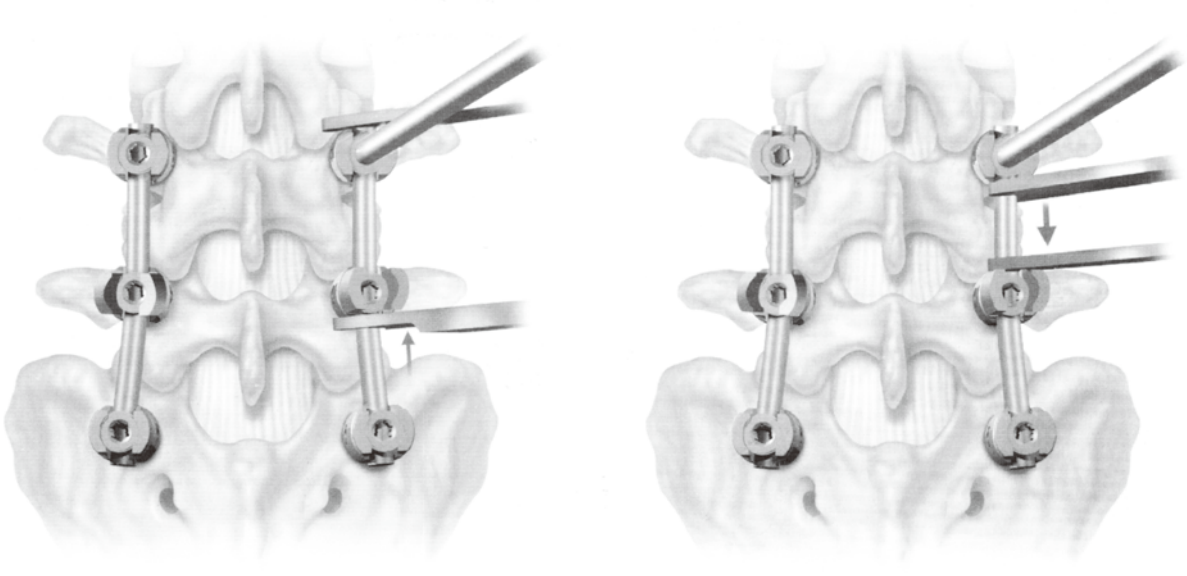




Step4 Compression / Distraction

If either compression or distraction is needed, it should be performed at this time. In either maneuver, the nut on one side of the motion segment should be provisionally tightened, with the nut loose in the implant to be compressed or distracted. Compression or distraction will occur against the provisionally tightened implant. Once satisfactory compression or distraction has been achieved, final tightening may be performed.

If it is determined there is inadequate anterior column support, suplemental means to reinforce the anterior column (PLIF) may be performed prior to final tightening of the nuts.



Note: Distraction is seldom indicated other than while performing a PLIF because of the increased risk of implant failure, pseudoarthrosis an creating segmental kyphosis.

Step5 Developing the fusion bed

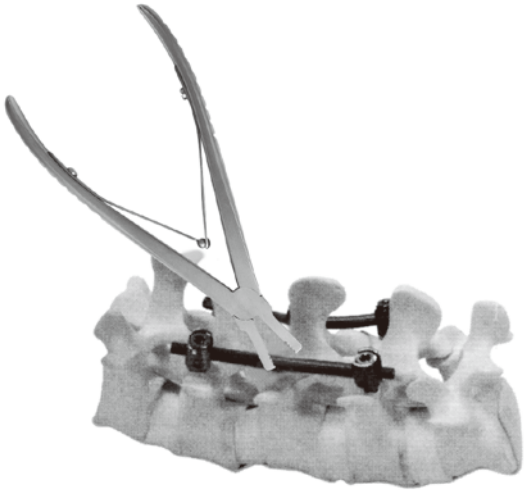
Meticulous development of the fusion bed enhances the potential for achieving solid fusion. First, the facet joint nutsules are removed. The articular carti;age of the facet joints is removed and cabcellous bone is exposed a high-speed burr. Cancellous bone graft is packed into each facet joint. The transverse processes; sacral alae and the lateral walls of the facet joints are decorticated.

Note: The reduced profile of the screw posts allows the surgeon to adequately visualize and decorticate the bony elements in the lateral gutter with the screws in place.

Step6 Final tightening

When all implants are securely in place, final tightening and break off the head of the Reduction Screws is done.

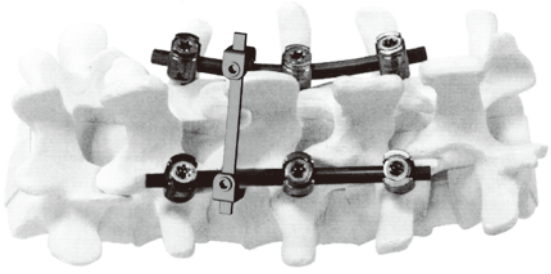
While the Nuts Screwdriver is inserted through the cannulation of the Counter Torque. The T-handle provides adequate leverage for tightening the cap. The handle of the Counter Torque device should be held firmly to prevent torquing of the construct while the cap is secured and sheared off.



Step7 Bone grafting, crosslink system and closure

Decortication and bone grafting can now take place. CROSSLINK may also be added at this time.

Wound closure is then performed in the customary manner.



IMPLANTS

Short Mono-axial Screw III (Titanium)

Product Code	Diameter(mm)	Length(mm)
11365-130	ϕ4.5	25mm
11365-135		30mm
11365-140		35mm
11365-145		40mm
11365-150		50mm
11365-155		55mm
11365-230	ϕ5.0	30mm
11365-235		35mm
11365-240		40mm
11365-245		45mm
11365-250		50mm
11365-255		55mm
11365-330	ϕ5.5	30mm
11365-335		35mm
11365-340		40mm
11365-345		45mm
11365-350		50mm
11365-355		55mm
11365-430	ϕ6.0	30mm
11365-435		35mm
11365-440		40mm
11365-445		45mm
11365-450		50mm
11365-455		55mm
11365-460		60mm
11365-465		65mm
11365-530	ϕ6.5	30mm
11365-535		35mm
11365-540		40mm
11365-545		45mm
11365-550		50mm
11365-555		55mm
11365-560		60mm
11365-565		65mm
11365-630	ϕ7.0	30mm
11365-635		35mm
11365-640		40mm
11365-645		45mm
11365-650		50mm
11365-655		55mm
11365-660		60mm
11365-665		65mm

Short Poly-axial Screw III (Titanium)

Product Code	Diameter(mm)	Length(mm)
11367-130	ϕ4.5	30mm
11367-135		35mm
11367-140		40mm
11367-145		45mm
11367-230	ϕ5.0	30mm
11367-235		35mm
11367-240		40mm
11367-245		45mm
11367-330	ϕ5.5	30mm
11367-335		35mm
11367-340		40mm
11367-345		45mm
11367-350		50mm
11367-430	ϕ6.0	30mm
11367-435		35mm
11367-440		40mm
11367-445		45mm
11367-450		50mm
11367-455		55mm
11367-530	ϕ6.5	30mm
11367-535		35mm
11367-540		40mm
11367-545		45mm
11367-550		50mm
11367-555		55mm
11367-630	ϕ7.0	30mm
11367-635		35mm
11367-640		40mm
11367-645		45mm
11367-650		50mm
11367-655		55mm

Long Mono-axial Screw VII (Titanium)

Product Code	Diameter(mm)	Length(mm)
11366-130	ϕ4.5	25mm
11366-135		30mm
11366-140		35mm
11366-145		40mm
11366-150		50mm
11366-155		55mm
11366-230	ϕ5.0	30mm
11366-235		35mm
11366-240		40mm
11366-245		45mm
11366-250		50mm
11366-255		55mm
11366-330	ϕ5.5	30mm
11366-335		35mm
11366-340		40mm
11366-345		45mm
11366-350		50mm
11366-355		55mm
11366-430	ϕ6.0	30mm
11366-435		35mm
11366-440		40mm
11366-445		45mm
11366-450		50mm
11366-455		55mm
11366-460		60mm
11366-465		65mm
11366-530	ϕ6.5	30mm
11366-535		35mm
11366-540		40mm
11366-545		45mm
11366-550		50mm
11366-555		55mm
11366-560		60mm
11366-565		65mm
11366-630	ϕ7.0	30mm
11366-635		35mm
11366-640		40mm
11366-645		45mm
11366-650		50mm
11366-655		55mm
11366-660		60mm
11366-665		65mm

Long Poly-axial Screw VII (Titanium)

Product Code	Diameter(mm)	Length(mm)
11368-130	ϕ4.5	30mm
11368-135		35mm
11368-140		40mm
11368-145		45mm
11368-230	ϕ5.0	30mm
11368-235		35mm
11368-240		40mm
11368-245		45mm
11368-330	ϕ5.5	30mm
11368-335		35mm
11368-340		40mm
11368-345		45mm
11368-350		50mm
11368-430	ϕ6.0	30mm
11368-435		35mm
11368-440		40mm
11368-445		45mm
11368-450		50mm
11368-455		55mm
11368-530	ϕ6.5	30mm
11368-535		35mm
11368-540		40mm
11368-545		45mm
11368-550		50mm
11368-555		55mm
11368-630	ϕ7.0	30mm
11368-635		35mm
11368-640		40mm
11368-645		45mm
11368-650		50mm
11368-655		55mm

Transverse Connector III (Titanium)

Product Code	Diameter(mm)	Length(mm)
11333-060	ϕ5.5	60mm
11333-065		65mm
11333-070		70mm
11333-075		75mm
11333-080		80mm

Transverse Connector IV (Titanium)

Product Code	Diameter(mm)	Length(mm)
11334-060	ϕ5.5	60mm
11334-065		65mm
11334-070		70mm

Fixing Rod IV (Titanium)

Product Code	Length(mm)
11314-050	50mm
11314-060	60mm
11314-070	70mm
11314-080	80mm
11314-090	90mm
11314-100	100mm
11314-110	110mm
11314-120	120mm
11314-130	130mm
11314-140	140mm
11314-150	150mm
11314-160	160mm
11314-170	170mm
11314-180	180mm
11314-190	190mm
11314-200	200mm
11314-300	300mm
11314-400	400mm
11314-500	500mm

INSTRUMENTS

1502799901 M9-IA Spinal System Instrument Set

TRAY 1

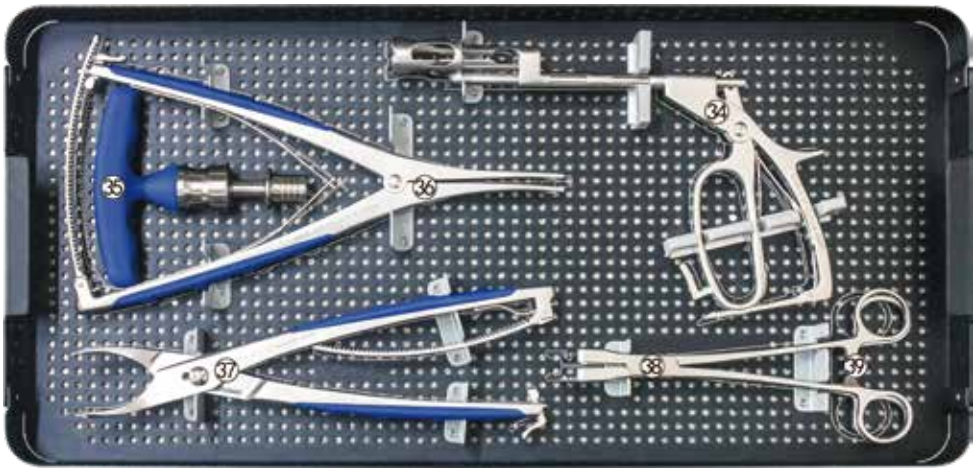
Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1502700600	Loction pin screwdriver		1
2	1502330300	Double head straight holt probe		1
3	1502701700	Torque handle	T28-1	1
4	1502701800	Plug screwdriver	SW6.35/T28-1	2
5	1502700900	Tap	Ø4.5	1
6	1502701000	Tap	Ø5.5	1
7	1502701100	Tap	Ø6.5	1
8	1502701200	Tap	Ø7.0	1
9	1502703400	Screwdriver for M9 multi-axial screws	Long	1
10	1502703500	Screwdriver for M9 multi-axial screws	Long	1
11	1502701400	Screwdriver for M9 mono-axial screws	Short	1
12	1502701500	Screwdriver for M9 mono-axial screws	Short	1
13	1502700800	Ball locating pin		4
14	1502700700	Column locating pin		4
15	1502704600	Awl		1
16	1503302300	Ratchet handle		2
17	1502700400	Straight guide for awl	Ø2.5	1
18	1502700200	Straight guide for awl	Ø3.2	1
19	1500700300	Curved guide for awl	Ø3.5	1
20	1502810900	Template	30cm	1
21	1502701600	Quickcoupling handle (T)		1

1502799901 M9-IA Spinal System Instrument Set

TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
22	1502703900	Reduction screw breaker	Ø5.5	1
23	1502702500	Rod pusher	Ø5.5/6.5	1
24	1502705300	Torque wrench	10N.m	1
25	1502202400	Transverse connection forceps	Square Head	1
26	1502301500	Rod holder	Ø5.5/6.0	1
27	1502702900	Screwdriver for self-break screws	SW6.35	1
28	1502703000	Plug take out screwdriver		1
29	1502601700	Rod bender	Ø5.5/6.0	1
30	1502702400	Sagittal in situ rod bender	Ø5.5, L	1
31	1502702300	Sagittal in situ rod bender	Ø5.5, R	1
32	1502702800	Counter guide spanner	Ø5.5	1
33	1502703300	Rotating connecting rod sapnner	SW5.0	1

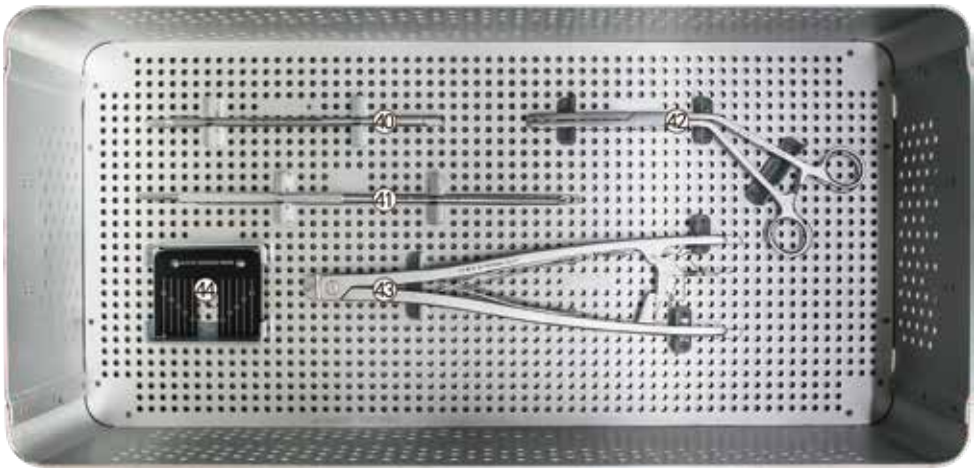
1502799901 M9-IA Spinal System Instrument Set



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
34	1502702600	Collinear reduction forceps	Ø5.5	1
35	1502600300	Torque wrench		1
36	1502703200	Curved distracting forceps	Ø5.5/6.0	1
37	1502703100	Curved pressure forceps	Ø5.5/6.0	1
38	1502703800	Swing forceps for reduction screws	Ø5.5	1
39	1502702700	Swing forceps	Ø5.5	1

1502799901 M9-IA Spinal System Instrument Set



TRAY 4

Item NO.	Product Code	Instrument Name	Specification	Quantity
40	1502704300	Transverse connection screwdriver	SW3.5	1
41	1500220900	Plug screwdriver	SW3.5/T28	1
42	1502704500	Transverse connection forceps (3.0)		1
43	1502704000	Rod rotating clamp	Ø5.5	1
44	1502704200	Transverse connection gauge		1
45	1502710000	Instrument case		1
 				
46(Optional)	1502330600	Hexagonal screwdriver for oblate transverse connector	SW4.5	1
47(Optional)	1502705200	Counter guide spanner(Spin)	Ø5.5	1

M10-la™

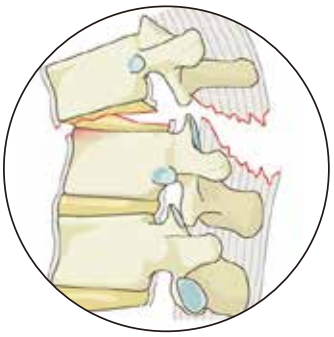
6.0 Series

Advantage

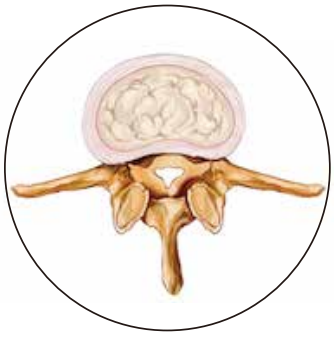
- Optimized fracture design, won't irritate the soft tissue.
- Flexible angle can be adjusted for intraoperative adjustment.
- Increased ball head's diameter & surface texture improve the friction.
- Double-line variable pitch, enhance the resistance.
- Taper thread makes screw stronger and avoid break.
- Negative angle design structure, accuracy is higher, sliding teeth risk is lower.

WASTONspine

INDICATION

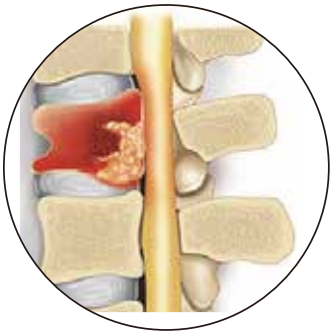


Fracture or dislocation



Spinal stenosis

Degenerative disc disease



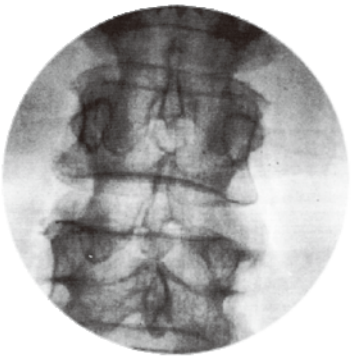
Tumor, tuberculosis

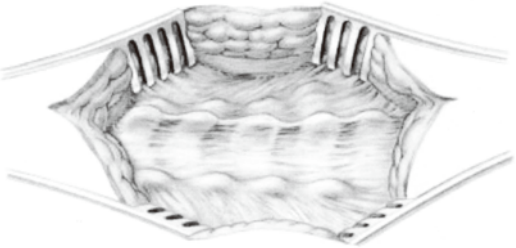
SURGICAL TECHNIQUE

Step1 Preliminary

• The patient is placed on the operating table in the prone position. A spine surgery frame should be used which will avoid any pressure on the abdomen, there by avoiding vena caval compression.

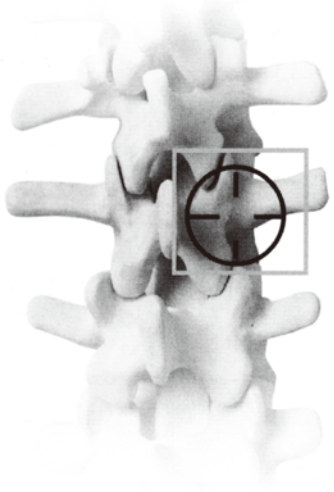
• The surgical approach is carried out through a standard midline incision to the spinal column over the spinous processes. The incision should be long enough to ensure expose expected. The supraspinous and interspinous ligaments should be preserved. Meticulous subperiosteal exposure of the posterior elements is performed. The paraspinal musculature is detached to the outer margins of transverse processes. When indicated, soft tissue and bony decompression are performed to relieve neurological compression.





Step2 Insert pedicle screw

Step2.1 Identification of the pedicles



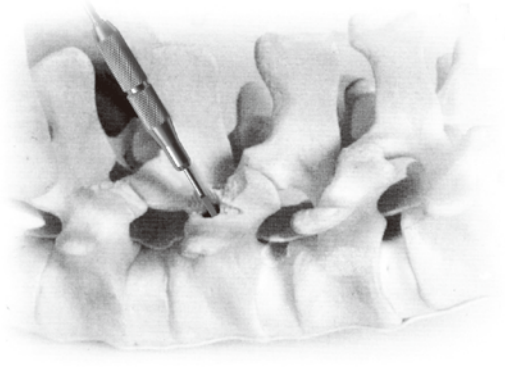
The dorsal entry point to the medullary canal of the lumbar pedicle is located at the convergent point of three distinct anatomic structures.

- Middle of the transverse process
- The superior facet
- The pars interarticularis

The starting point can also be identified at the intersection of two lines drawn through the middle of the transverse process and the lateral border of the superior articular facet. A burr or ronquer may be used to clear away the hard cortical bone at the junction of the facet and transverse process, thereby exposing the cancellous portion of the pedicle. The starting point in the sacral pedicles is significantly different due to the lack of transverse processes and the presence of the sacral ala. The size and configuration of the S1 pedicle allow the surgeon more flexibility in positioning the bone bolt within the sacrum. The entrance point to the S1 pedicle is caudal and slightly lateral to the superior articular process. The entry point should be in the most caudal portion of the pedicle.

Step2.2 Preparation of the pedicle canal

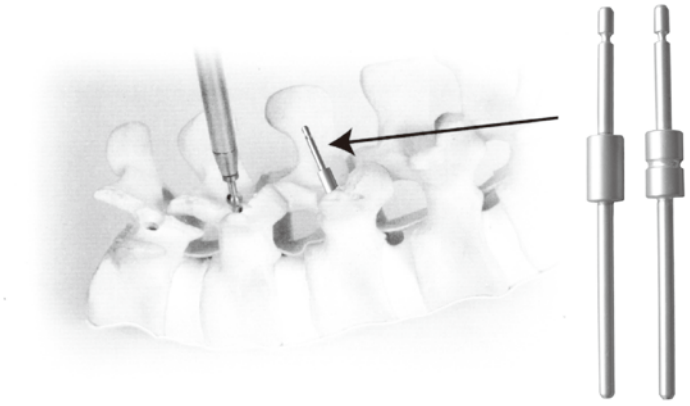
An Awl or burr can be used establish an opening to the pedicle at this site. A Straight Awl is bored through the pedicle and into the vertebral body 50%~80%• The anteror cortex of the vertebral body should be violated with great caution. The scale on the Straight Awl can tip the drilling depth, and also can determine the depth of the pedicle screw



Step2.3 Determining screw length

Having opened the channel of the pedicle, all four walls of the pedicle can be palpated with a Probe to ensure that the walls of the pedicle have not been violatd. A Probe calibrated at 10mm intervals can then be inserted into the vertebral body and the length of the pedicle and vertebral body measured to determine appropriate screw length.

A radiographic Marker is placed through the pedicle and into the vertebral body, and its position within the confines of the pedicle is confirmed with plain radiographs or fluoroscopy. The appropriate length of the screw can also be confirmed on lateral radiographs by referring to the Marker.



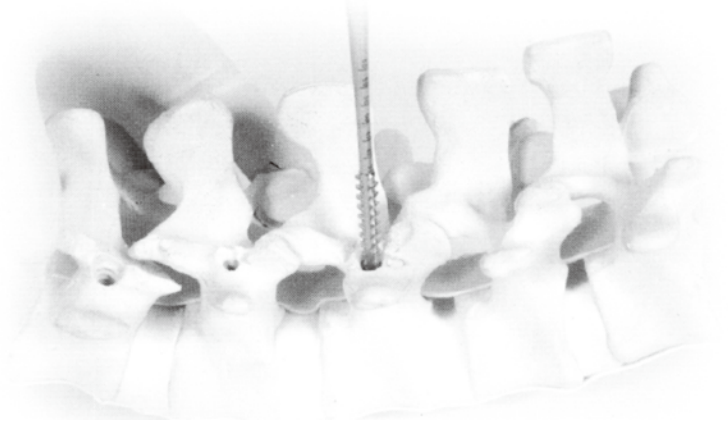
Step2.4 Tapping the pedicles

M9 instumentation offers two taps (4.5mm, 5.5mm) which correspond to the bone screw diameters.

The apropriate diameter tap is inserted through the pedicle and into the vertebral body.

Following this final preparation of the pedicle; a probe can be used to follow the tap threads through the cancellous bone and palpate for any perforations in the pedicle walls.

Note: Tops for reference only.

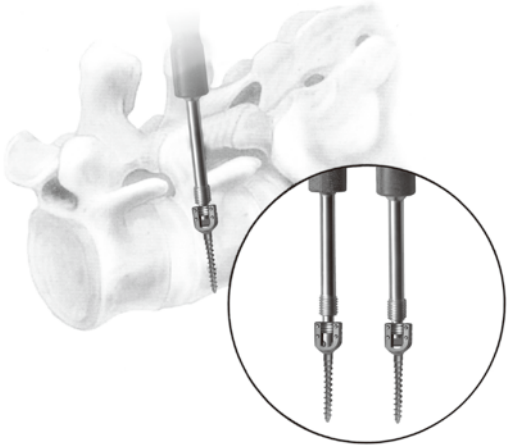


Step2.5 Screw insertion

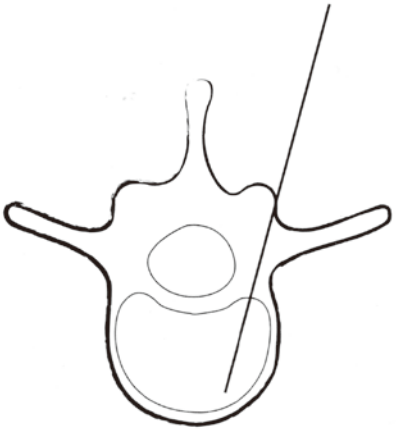
The pedicle screws are sequentially inserted using the Monoaxial/ Mutiaxial Screwdriver. Insert the pedicle screw into the Monoaxial/ Multiaxial Screwdriver and drive into the pedicles by following the previously tapped canal. The pedicle screws should be inserted until the tip of the wrench abuts the bony surface.

Multiaxial Screwdriver Application: The Multiaxial Screwdriver head is three-jaw, place the head of the Multiaxial Screwdriver into The head of the screw slot. Slide the Screwdriver sleeve down into the head of the screw, tightening the thread.

Note: Tightening after the three-jaw head fully inserted into the screw head, otherwise the three-jaw head will be deformation and the operation can not be well performed.



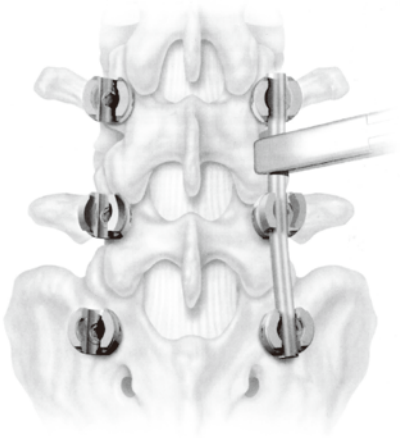
Note: Screw insertion should follow the angle of the pedicle canal.



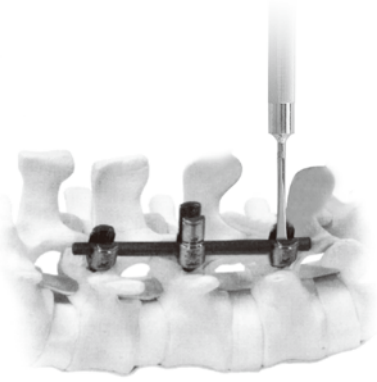
Step3 Rod insertion

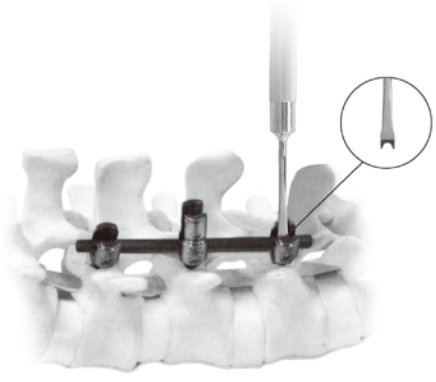
Due to differences in pedicle angles, as measured from the midline (spinous processes), screw position as viewed posteriorly may be malaligned. The Multi Axial Screw may be angled up to 25° medial and lateral to facilitate in the placement of the rod with minimal bending/ contouring.

There are a various length of the rod in M9 System so that the operationg of cutting rods is not necessary. A Rod Template may be used to determine the rod contour needed for construct assembly. The rod may be bent into lordosis using the Rod Bender. The rod does not have to be precisely bent for attachment to the pedicle screws, especially for a single-level fusion. However, bending the rod to an appropriate lordotic curvature lowers the profile of the implants and improves the biomechanics of the construct by reducing the bending moment and thus reducing the stresses on the pedicle screws. A lordotic bend in the rod also allows an element of medial or lateral adjustment on a multi-level construct.



Rod pusher is used to push the rod on the top of the pedicle screw head, the nut is then inserted through the quick screw driver into the head of the pedicle screw.

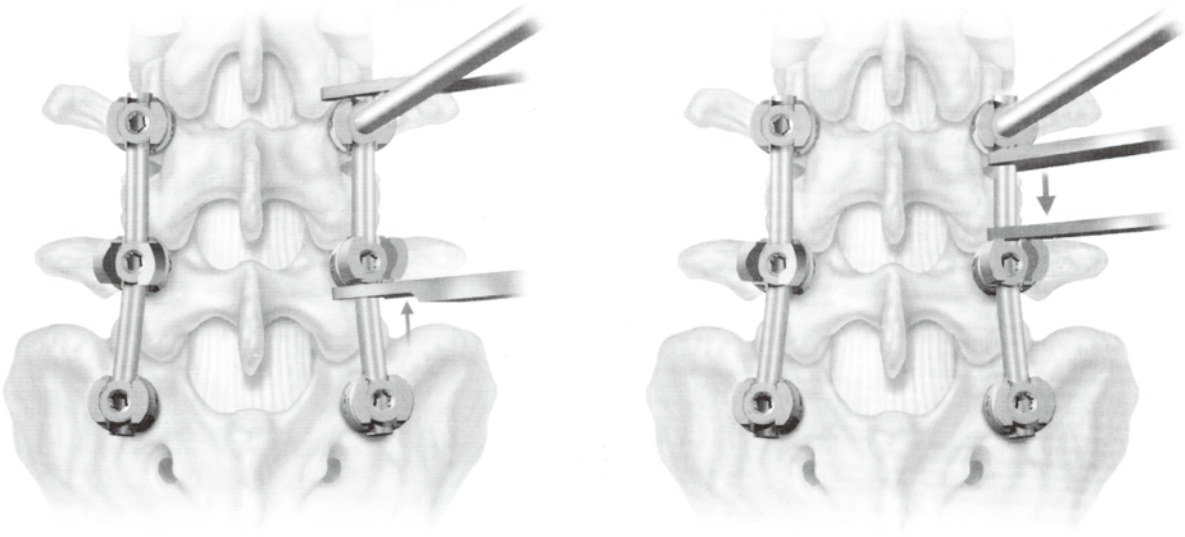




Step4 Compression / Distraction

If either compression or distraction is needed, it should be performed at this time. In either maneuver, the nut on one side of the motion segment should be provisionally tightened, with the nut loose in the implant to be compressed or distracted. Compression or distraction will occur against the provisionally tightened implant. Once satisfactory compression or distraction has been achieved, final tightening may be performed.

If it is determined there is inadequate anterior column support, suplemental means to reinforce the anterior column (PLIF) may be performed prior to final tightening of the nuts.



Note: Distraction is seldom indicated other than while performing a PLIF because of the increased risk of implant failure, pseudoarthrosis an creating segmental kyphosis.

Step5 Developing the fusion bed

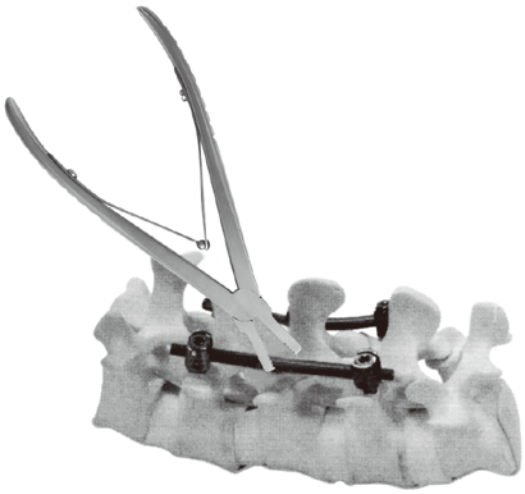
Meticulous development of the fusion bed enhances the potential for achieving solid fusion. First, the facet joint nutsules are removed. The articular carti;age of the facet joints is removed and cabcellous bone is exposed a high-speed burr. Cancellous bone graft is packed into each facet joint. The transverse processes; sacral alae and the lateral walls of the facet joints are decorticated.

Note: The reduced profile of the screw posts allows the surgeon to adequately visualize and decorticate the bony elements in the lateral gutter with the screws in place.

Step6 Final tightening

When all implants are securely in place, final tightening and break off the head of the Reduction Screws is done.

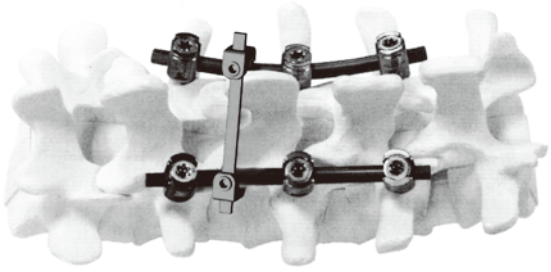
While the Nuts Screwdriver is inserted through the cannulation of the Counter Torque. The T-handle provides adequate leverage for tightening the cap. The handle of the Counter Torque device should be held firmly to prevent torquing of the construct while the cap is secured and sheared off.



Step7 Bone grafting, crosslink system and closure

Decortication and bone grafting can now take place. CROSSLINK may also be added at this time.

Wound closure is then performed in the customary manner.



IMPLANTS

Short Mono-axial Screw III (Titanium)

Product Code	Diameter(mm)	Length(mm)
11478-130	ϕ4.5	30mm
11478-135		35mm
11478-140		40mm
11478-145		45mm
11478-150		50mm
11478-155		55mm
11478-230	ϕ5.0	30mm
11478-235		35mm
11478-240		40mm
11478-245		45mm
11478-250		50mm
11478-255		55mm
11478-330	ϕ5.5	30mm
11478-335		35mm
11478-340		40mm
11478-345		45mm
11478-350		50mm
11478-355		55mm
11478-430	ϕ6.0	30mm
11478-435		35mm
11478-440		40mm
11478-445		45mm
11478-450		50mm
11478-455		55mm
11478-460		60mm
11478-465		65mm
11478-530	ϕ6.5	30mm
11478-535		35mm
11478-540		40mm
11478-545		45mm
11478-550		50mm
11478-555		55mm
11478-560		60mm
11478-565		65mm
11478-630	ϕ7.0	30mm
11478-635		35mm
11478-640		40mm
11478-645		45mm
11478-650		50mm
11478-655		55mm
11478-660		60mm
11478-665		65mm

Short Poly-axial Screw II (Titanium)

Product Code	Diameter(mm)	Length(mm)
11480-030	ϕ4.5	30mm
11480-035		35mm
11480-040		40mm
11480-045		45mm
11480-130	ϕ5.0	30mm
11480-135		35mm
11480-140		40mm
11480-145		45mm
11480-230	ϕ5.5	30mm
11480-235		35mm
11480-240		40mm
11480-245		45mm
11480-250		50mm
11480-330	ϕ6.0	30mm
11480-335		35mm
11480-340		40mm
11480-345		45mm
11480-350		50mm
11480-355		55mm
11480-430	ϕ6.5	30mm
11480-435		35mm
11480-440		40mm
11480-445		45mm
11480-450		50mm
11480-455		55mm
11480-530	ϕ7.0	30mm
11480-535		35mm
11480-540		40mm
11480-545		45mm
11480-550		50mm

Long Mono-axial Screw VII (Titanium)

Product Code	Diameter(mm)	Length(mm)
11479-130	ϕ4.5	30mm
11479-135		35mm
11479-140		40mm
11479-145		45mm
11479-150		50mm
11479-155		55mm
11479-230	ϕ5.0	30mm
11479-235		35mm
11479-240		40mm
11479-245		45mm
11479-250		50mm
11479-255		55mm
11479-330	ϕ5.5	30mm
11479-335		35mm
11479-340		40mm
11479-345		45mm
11479-350		50mm
11479-355		55mm
11479-430	ϕ6.0	30mm
11479-435		35mm
11479-440		40mm
11479-445		45mm
11479-450		50mm
11479-455		55mm
11479-460		60mm
11479-465		65mm
11479-530	ϕ6.5	30mm
11479-535		35mm
11479-540		40mm
11479-545		45mm
11479-550		50mm
11479-555		55mm
11479-560		60mm
11479-565		65mm
11479-630	ϕ7.0	30mm
11479-635		35mm
11479-640		40mm
11479-645		45mm
11479-650		50mm
11479-655		55mm
11479-660		60mm
11479-665		65mm

Long Poly-axial Screw VI (Titanium)

Product Code	Diameter(mm)	Length(mm)
11481-030	ϕ4.5	30mm
11481-035		35mm
11481-040		40mm
11481-045		45mm
11481-130	ϕ5.0	30mm
11481-135		35mm
11481-140		40mm
11481-145		45mm
11481-230	ϕ5.5	30mm
11481-235		35mm
11481-240		40mm
11481-245		45mm
11481-250		50mm
11481-330	ϕ6.0	30mm
11481-335		35mm
11481-340		40mm
11481-345		45mm
11481-350		50mm
11481-355		55mm
11481-430	ϕ6.5	30mm
11481-435		35mm
11481-440		40mm
11481-445		45mm
11481-450		50mm
11481-455		55mm
11481-530	ϕ7.0	30mm
11481-535		35mm
11481-540		40mm
11481-545		45mm
11481-550		50mm

Transverse Connector III (Titanium)

Product Code	Diameter(mm)	Length(mm)
11433-060	ϕ6.0	60mm
11433-065		65mm
11433-070		70mm
11433-075		75mm
11433-080		80mm

Transverse Connector IV (Titanium)

Product Code	Diameter(mm)	Length(mm)
11434-060	ϕ6.0	60mm
11434-065		65mm
11434-070		70mm

Fixing Rod IV (Titanium)

Product Code	Diameter(mm)	Length(mm)
11412-050	ϕ6.0	50mm
11412-060		60mm
11412-070		70mm
11412-080		80mm
11412-090		90mm
11412-100		100mm
11412-110		110mm
11412-120		120mm
11412-130		130mm
11412-140		140mm
11412-150		150mm
11412-160		160mm
11412-170		170mm
11412-180		180mm
11412-190		190mm
11412-200		200mm
11412-300		300mm
11412-500		500mm

INSTRUMENTS

1502299900 M10-IA Spinal System Instrument Set

TRAY 1

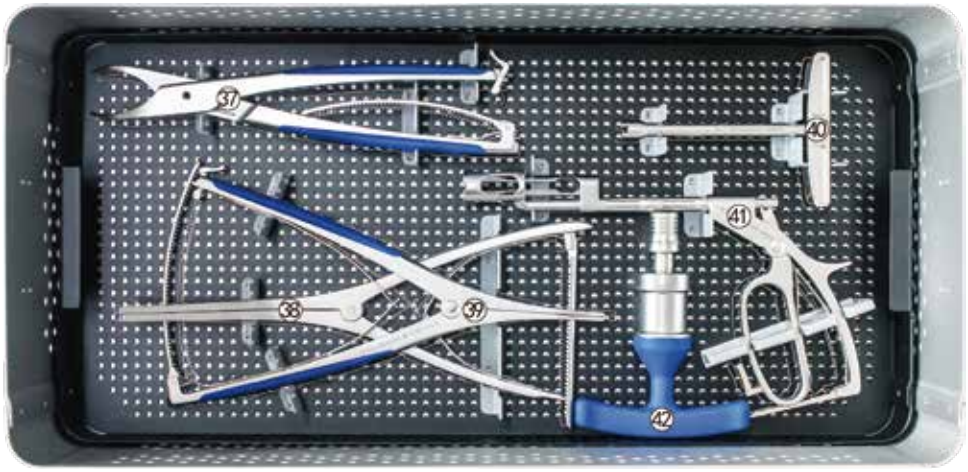
Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1502704600	Awl		1
2	1503302300	Ratchet handle		2
3	1502700700	Column locating pin		4
4	1502700800	Ball locating pin		4
5	1502700400	Straight guide for awl	Ø2.5	1
6	1502700200	Straight guide for awl	Ø3.2	1
7	1502700300	Curved guide for awl	Ø3.5	1
8	1502704300	Transverse connection screwdriver		1
9	1502700600	Loction pin screwdriver		1
10	1502701600	Quickcoupling handle (T)		1
11	1502330300	Double head straight holt probe		1
12	1502201800	Reduction screw breaker (6)		1
13	1502200100	Hard holt probe		1
14	1502203200	Counter guide spanner(Spin)(6)		2
15	1502700900	Tap 4.5	Ø4.5	1
16	1502701000	Tap 5.5	Ø5.5	1
17	1502701100	Tap 6.5	Ø6.5	1
18	1502701200	Tap 7.0	Ø7.0	1
19	1500220900	Plug screwdriver	SW3.5	2
20	1502810900	Template	30 cm	1
21	1502200700	Screwdriver for M10 mono-axial screws	Short	1
22	1502200600	Screwdriver for M10 multi-axial screws	Short	1
23	1502201600	Screwdriver for M10 multi-axial screws	Long	1
24	1502201500	Screwdriver for M10 multi-axial screws	Long	1

1502299900 M10-IA Spinal System Instrument Set

TRAY 2

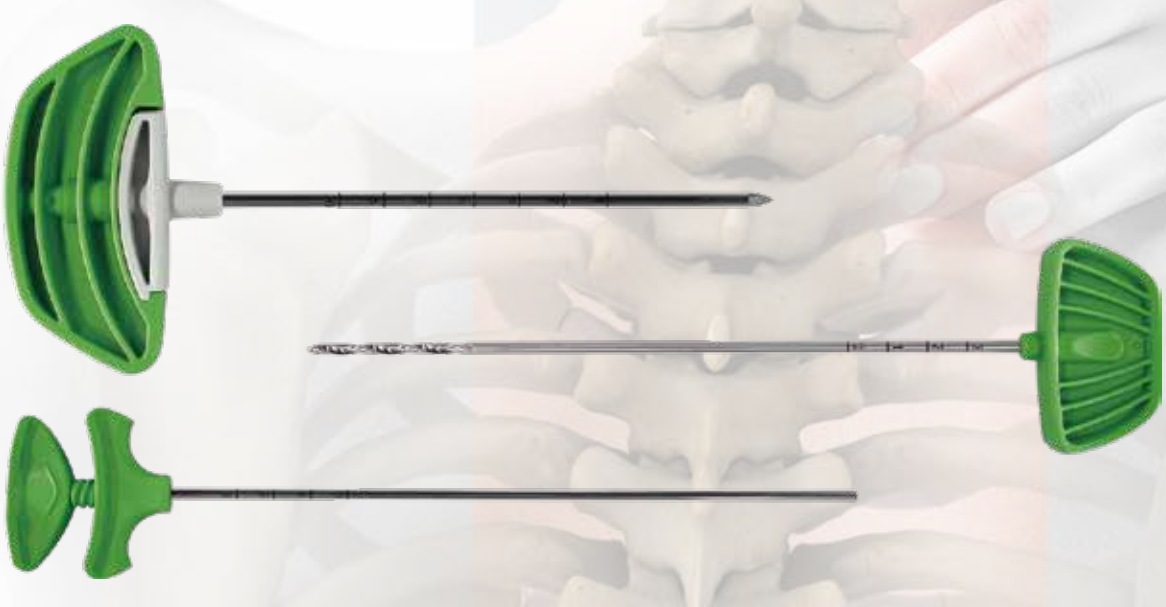
Item NO.	Product Code	Instrument Name	Specification	Quantity
25	1502201100	Counter guide spanner (6)		1
26	1502200900	Rod pusher (5.5/6.0)		1
27	1502703300	Rotating connecting rod sapnner	SW5.0	1
28	1502201400	T-wrench	T28	1
29	1502201700	Swing forceps for reduction screws (6)		1
30	1502201000	Swing forceps (6)		1
31	1502202100	Holding holder		1
32	1502301500	Rod holder (5.5/6.0)		1
33	1502601700	Rod bender (5.5/6.0)		1
34	1502202300	Transverse connection forceps		1
35	1502202400	Transverse connection forceps (Square Head)		1
36	1502201300	Rod rotating clamp (5.5)		1

1502299900 M10-IA Spinal System Instrument Set



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
37	1502703200	Curved distracting forceps (5.5/6.0)		1
38	1502201900	Distracting forceps (5.5/6.0)		1
39	1502703100	Curved pressure forceps (5.5/6.0)		1
40	1502202200	Counter guide spanner		1
41	1502201200	Collinear reduction forceps (M10)		1
42	1502600300	Torque wrench (12N.m)		1
43	1502200000	Instrument case		1
 				
44	1502203300	Hexagonal screwdriver for oblate transverse connector	SW4.5	1
45	1502203200	Counter guide spanner(Spin)(6)		1



Apex-T™

Cervical Laminoplasty System

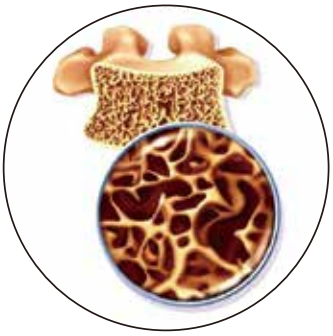
Advantage

- Used for thoracic vertebroplasty.
- Minimally invasive operation reduces tissue damage and bleeding.
- Simple and fast operation, shortening the operation time. Local anesthesia can be used to reduce the risk of surgery and postoperative complications.
- Minimize radiation exposure.
- Stop cement flow instantly, minimize the potential for cement extravasation.
- Patients pain was relieved immediately after operation, the vertebral body height was effectively restored, the kyphosis was corrected.

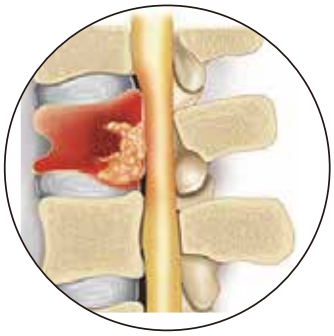
WASTONspine

INDICATION

Compression fracture



Osteoporosis



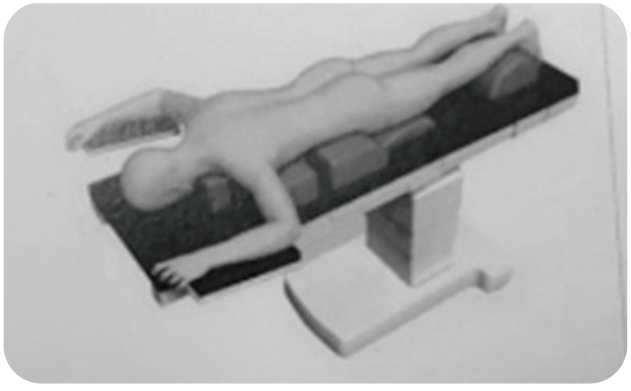
Tumor

Scoliosis

SURGICAL TECHNIQUE

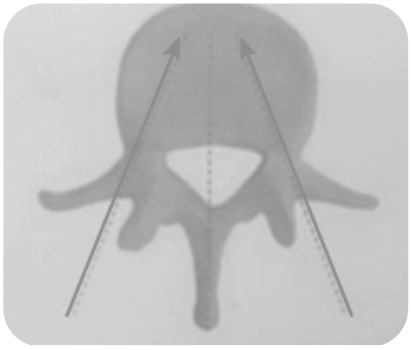
1. Position

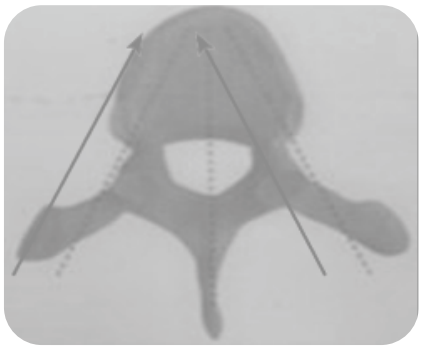
- Prone postion
- Soft pillows are placed on the upper and lower ends of the fractured vertebral body
- Locate and mark diseased vertebra

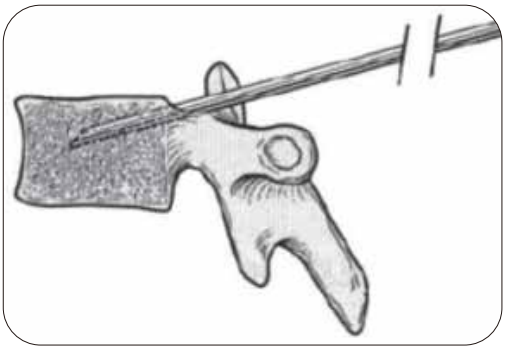


2. Puncturing

- Make a 5mm longitudinal incision at the marked point
- Transpedicular puncture
- 2-3mm past the posterior wall of the vertebral body

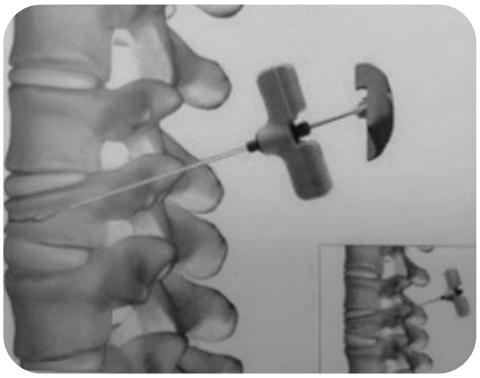


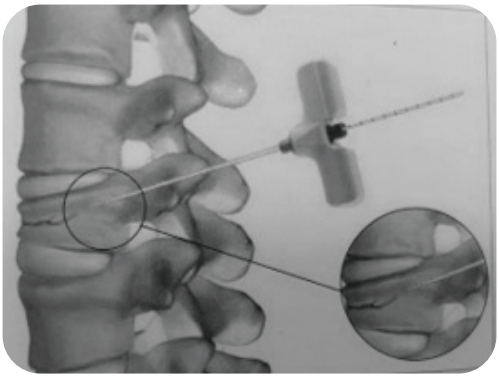




3. Create a working channel (1)

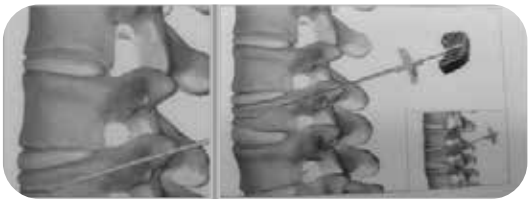
- Remove the puncture probe
- Insert the guide wire into the puncture cannula and to a point 3mm beyond the tip of the cannula
- Remove the puncture cannula

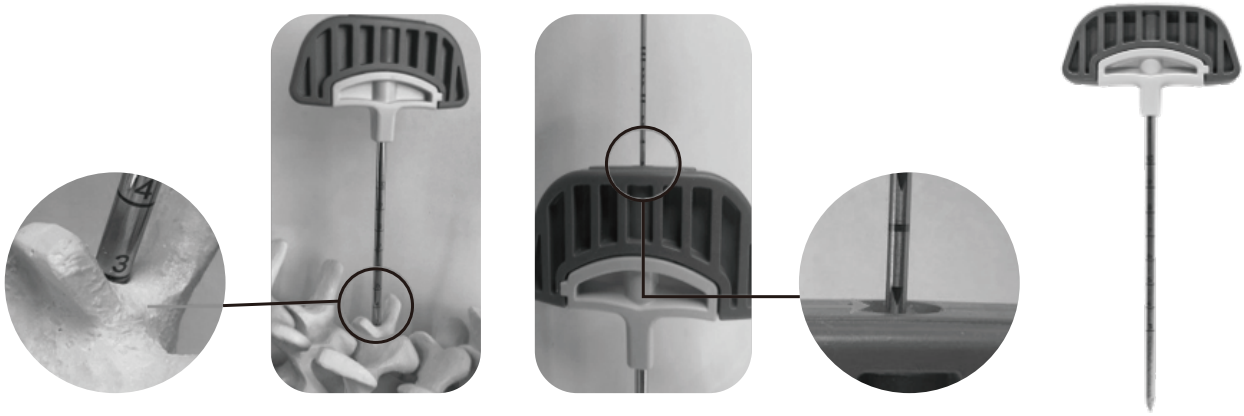




4. Create a working channel (2)

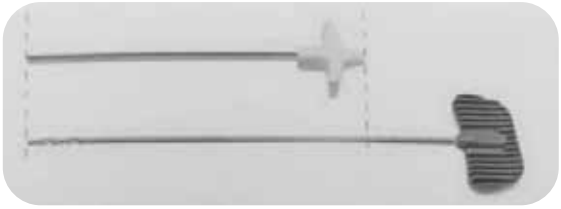
- Position the expandor device over the guide wire and advance it forward until it is 5mm past the posterior wall of the vertebral body
- Remove the expandor and the expandor cannula is the working channel

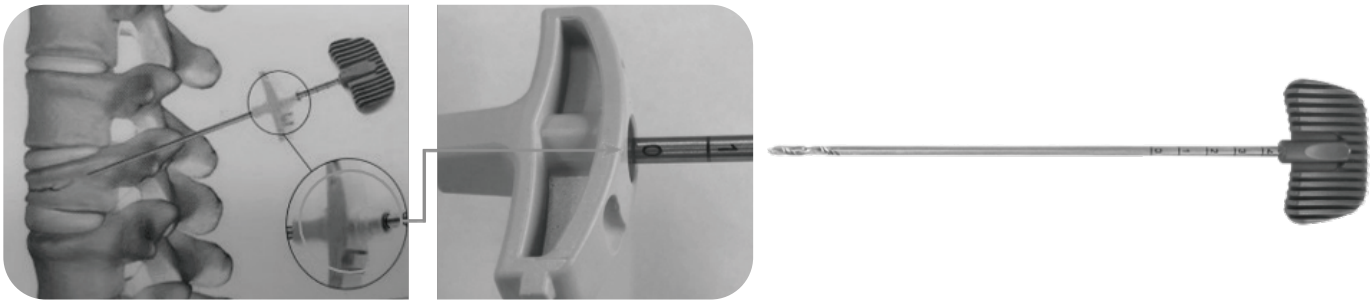




5. Expand the channel

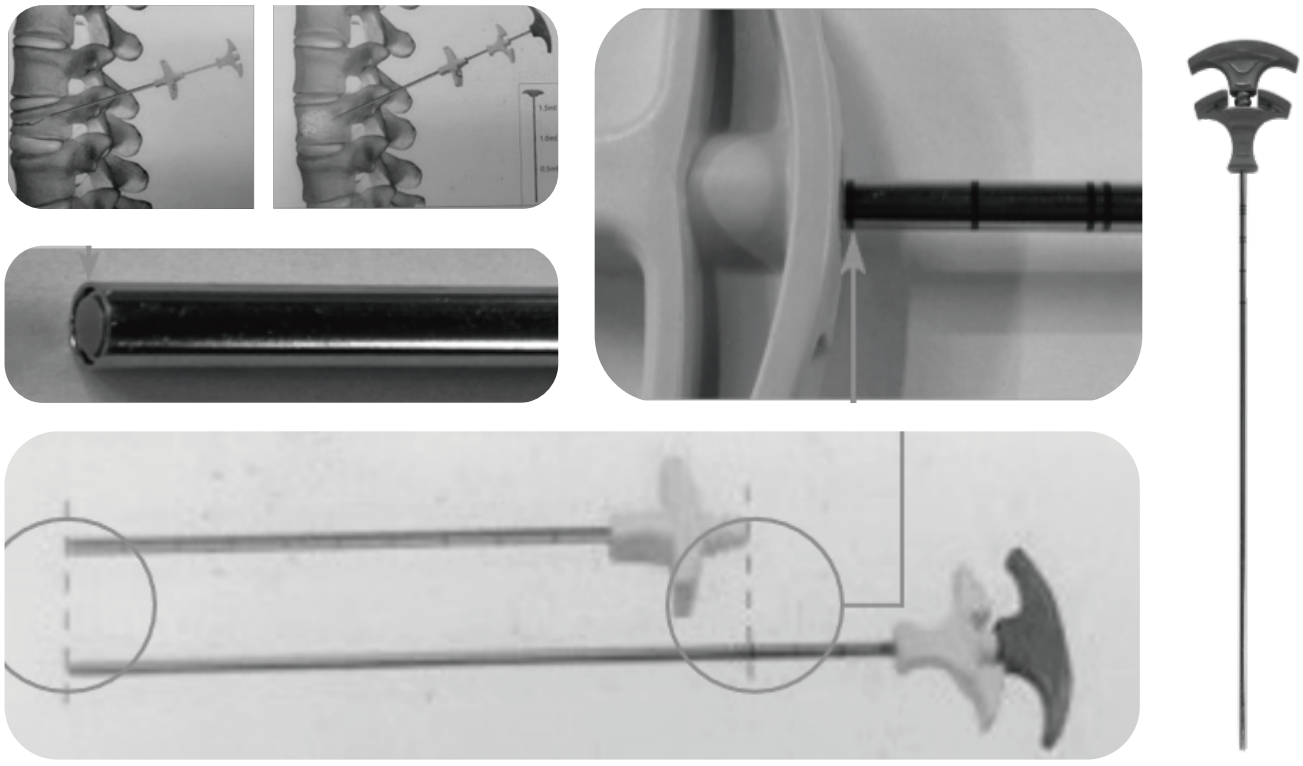
- Use drill bit to create a space in the vertebral body
- Stop at 2-3mm before the anterior wall of the vertebral body





6. Inject bone cement

- Inject sticky bone cement into bone cement filling device
- Delivery the bone cement through the working channel
- After the bone cement has entered the agglomeration stage, remove the filler and working channel



IMPLANTS

Puncture Expander Device

Product Code	Specification	Outer Dia(mm)	Quantity
19002301	B-3.5-1	3.5 mm	2

Drill

Product Code	Specification	Outer Dia(mm)	Quantity
19002303	B-3.5-3	3.0 mm	1

Bone Cement Filling Device

Product Code	Specification	Outer Dia(mm)	Quantity
19002302	B-3.5-2	3.0 mm	6

Apex-L™

Cervical Laminoplasty System

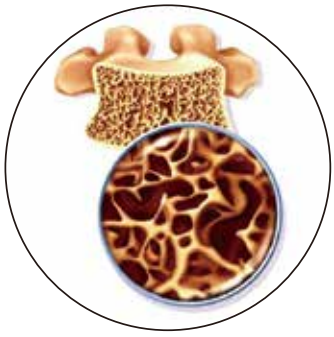
Advantage

- Used for lumbar vertebroplasty.
- Minimally invasive operation reduces tissue damage and bleeding.
- Simple and fast operation, shortening the operation time. Local anesthesia can be used to reduce the risk of surgery and postoperative complications.
- Minimize radiation exposure.
- Stop cement flow instantly, minimize the potential for cement extravasation.
- Patients pain was relieved immediately after operation, the vertebral body height was effectively restored, the kyphosis was corrected.

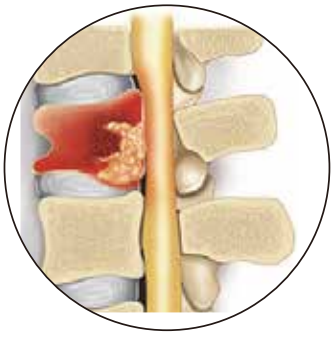
WASTONspine

INDICATION

Compression fracture



Osteoporosis



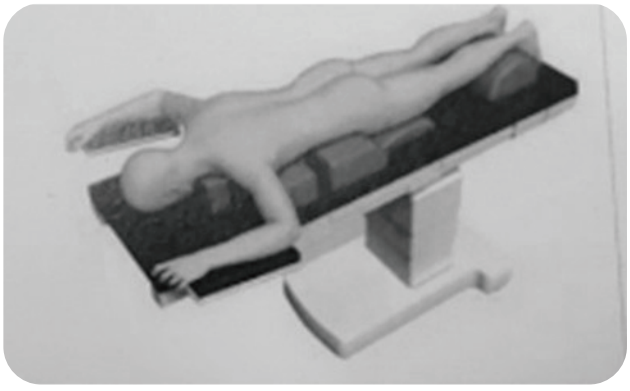
Tumor

Scoliosis

SURGICAL TECHNIQUE

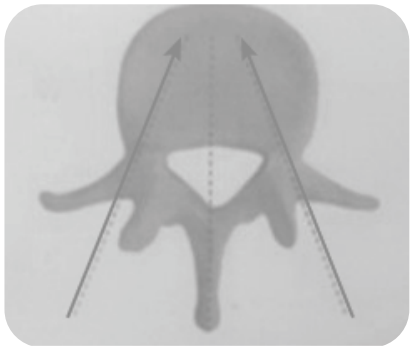
1. Position

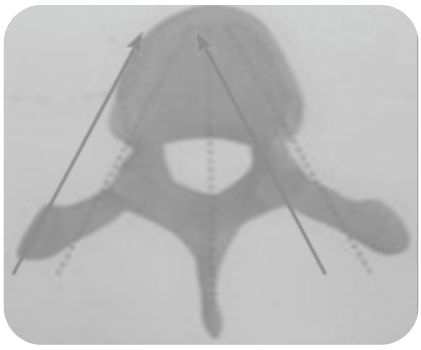
- Prone postion
- Soft pillows are placed on the upper and lower ends of the fractured vertebral body
- Locate and mark diseased vertebra

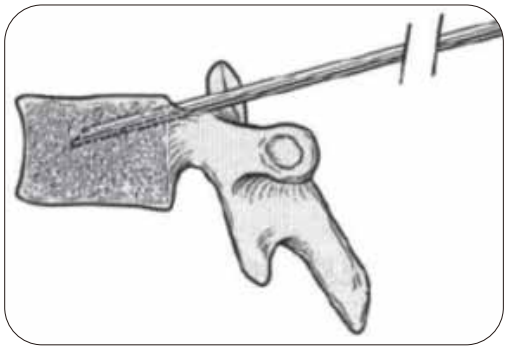


2. Puncturing

- Make a 5mm longitudinal incision at the marked point
- Transpedicular puncture
- 2-3mm past the posterior wall of the vertebral body







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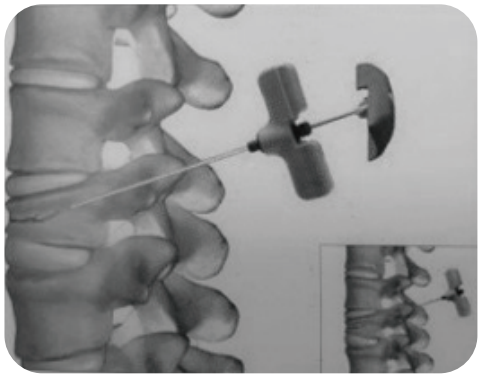

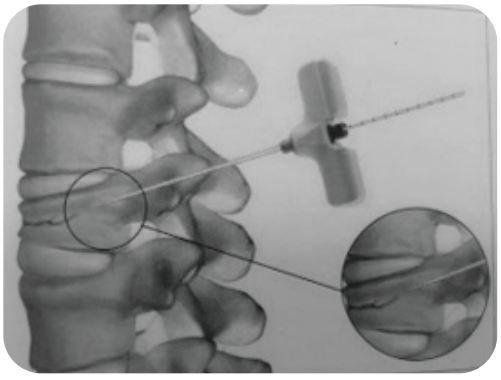

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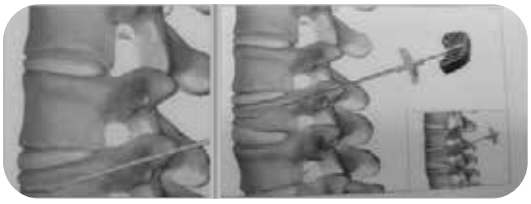
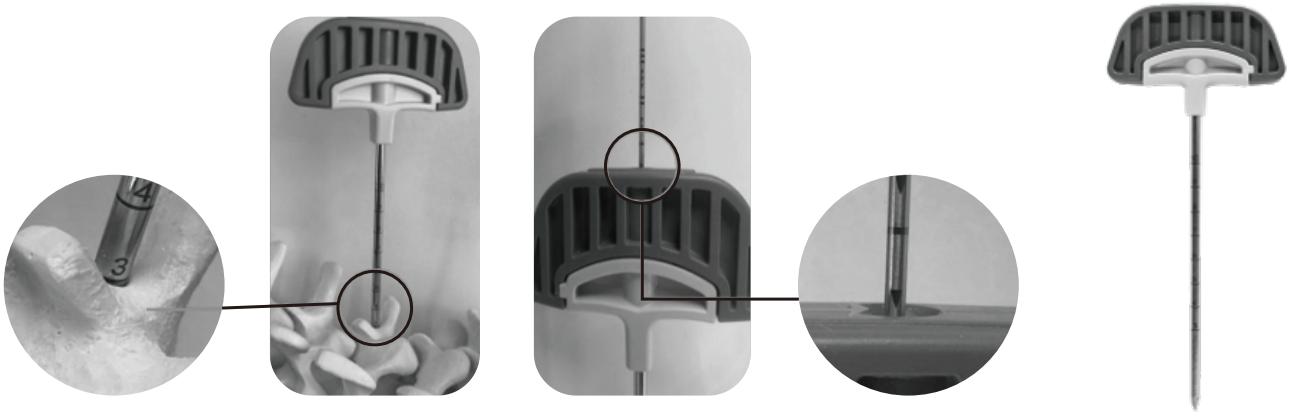
• Position the expandor device over the guide wire and advance it forward until it is 5mm past the posterior wall of the vertebral body

• Remove the expandor and the expandor cannula is the working channel





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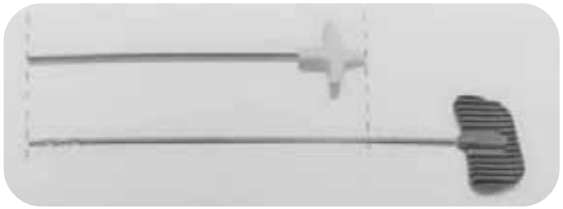
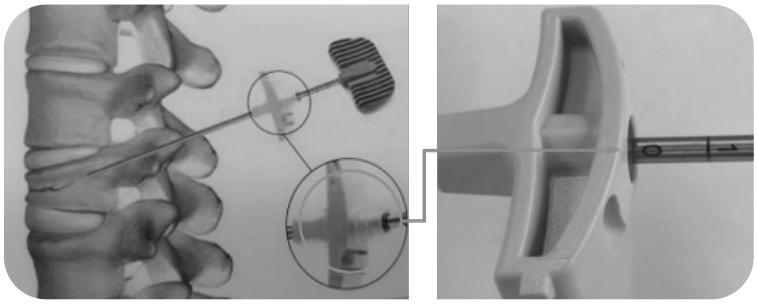
• Use drill bit to create a space in the vertebral body

• Stop at 2-3mm before the anterior wall of the vertebral body





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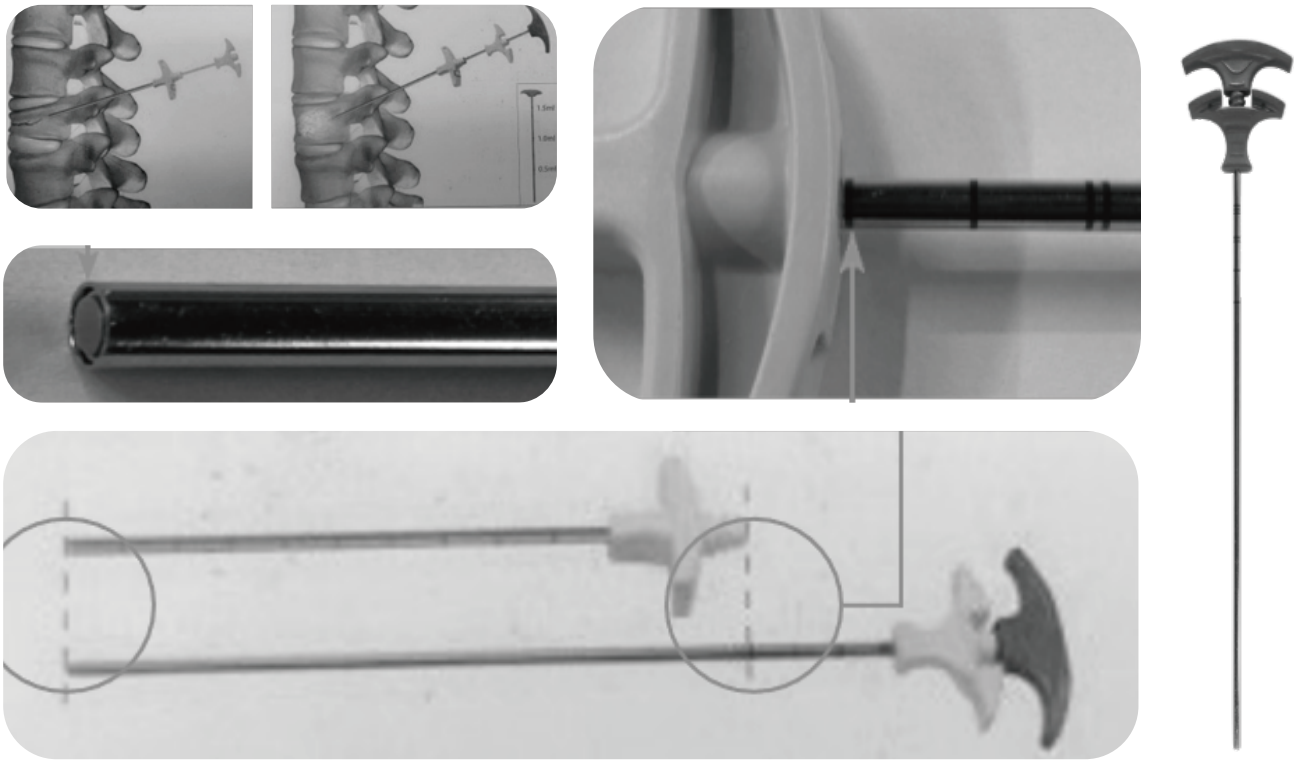
• Inject sticky bone cement into bone cement filling device

• Delivery the bone cement through the working channel

•After the bone cement has entered the agglomeration stage, remove the filler and working channel



IMPLANTS

Puncture Device

Product Code	Specification	Outer Dia(mm)	Quantity
19002101	B-4.2-1	4.2	2

Puncture Expander Device

Product Code	Specification	Outer Dia(mm)	Quantity
19002102	B-4.2-2	4.2	2

Expander Device

Product Code	Specification	Outer Dia(mm)	Quantity
19002103	B-4.2-3	4.2	2

Bone Cement Filling Device

Product Code	Specification	Outer Dia(mm)	Quantity
19002104	B-4.2-4	4.2	6

Drill

Product Code	Specification	Outer Dia(mm)	Quantity
19002105	B-4.2-5	3.5	1

Guide Wire

Product Code	Specification	Outer Dia(mm)	Quantity
19002106	B-4.2-6	/	2

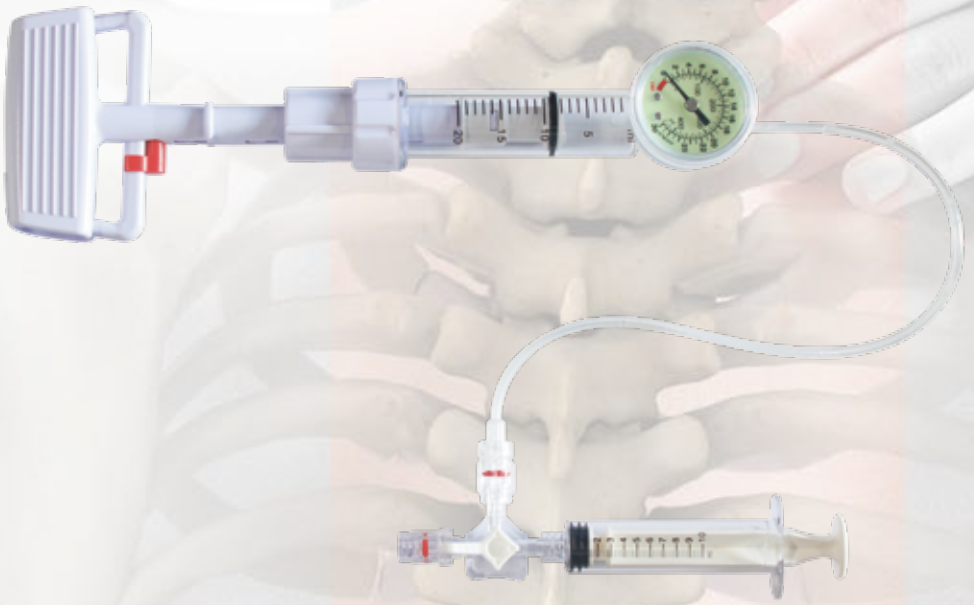
ApexBalloon™

Cervical Laminoplasty System

Advantage

- Kyphoplasty Balloon Catheter is designed for correcting compression fractures and restoring vertebral body height.
- Doctors should choose appropriate balloon for dilation according to fracture types;
- Different OD of the sheath can be applied to different working channel to realize accurate dilation.
- Different shapes of the balloon can adapt to different thoracic vertebra, lumbar vertebra as well as other types of fractures;
- The balloon materials feature with excellent characteristics, such as fine supportiveness, biocompatibility, biological persistence, surface anti-biodegradation and environmental stress cracking resistance;
- Standard four-wing pleating process ensures excellent passability after repeated inflation;
- Each balloon has passed the pressure and seal test before leaving the factory. Strict quality control measures minimize the risk of balloon burst and leakage.

WASTONspine



ApexBalloon™

Cervical Laminoplasty System

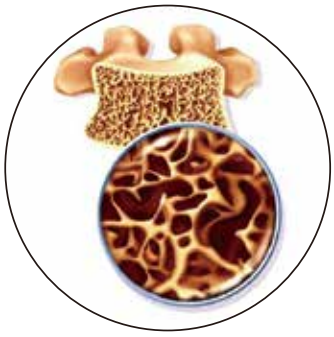
Advantage

- Optimal head fluid channel design makes it convenient for venting;
- O-type plunger design makes for low frictional resistance and can pressure easily;
- Screw fixed design of pressure gauge assures safety and reliability of the seal;
- The inflator is equipped with fluorescent gauge, which contributes to accuracy of reading;
- Ergonomic handle is comfortable and convenient to grasp;
- The inflator is of good leakproofness since it uses materials with high strength and safety;

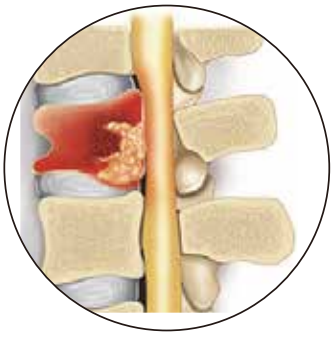
WASTONspine

INDICATION

Compression fracture



Osteoporosis



Tumor

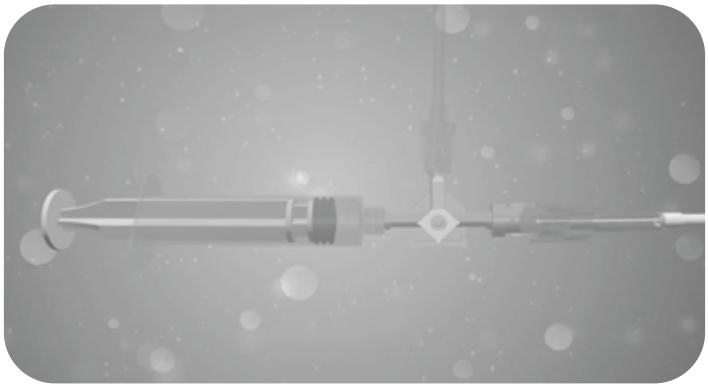
Scoliosis

SURGICAL TECHNIQUE

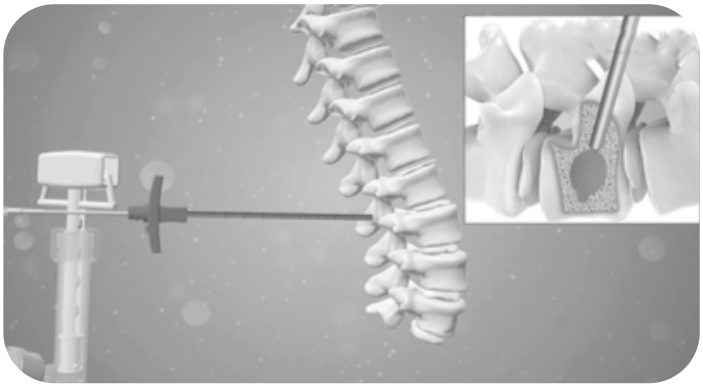
1. Prepare the balloon catheter and balloon inflator

- Check the pressure pump piston position
- Pointer points to “0”
- Connect to filling device

1.Extract contrast agent



2. Make the balloon vacuum



3. Balloon compression

4. Configure bone cement

Bone cement configuration method:

1. Open the powder container and place it normally;
2. Open the liquid medicine bottle and pour all the liquid into the powder container;
3. After putting the lid on the container, shake the container by hand until well mixed;
4. Place the powder container normally again, remove the lid, and extract the mixed bone cement to a suitable tool for injection.

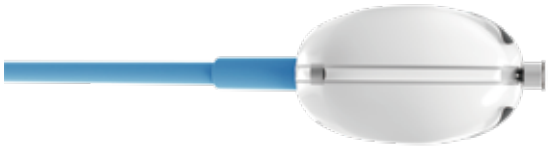
Tips: time, temperature, stirring speed:

1. Regular 13-15 minutes;
2. It depends on room temperature and whether it is refrigerated;
3. Stir in the same direction at a constant speed every second.

Viscous stage: 5-8 minutes after mixing

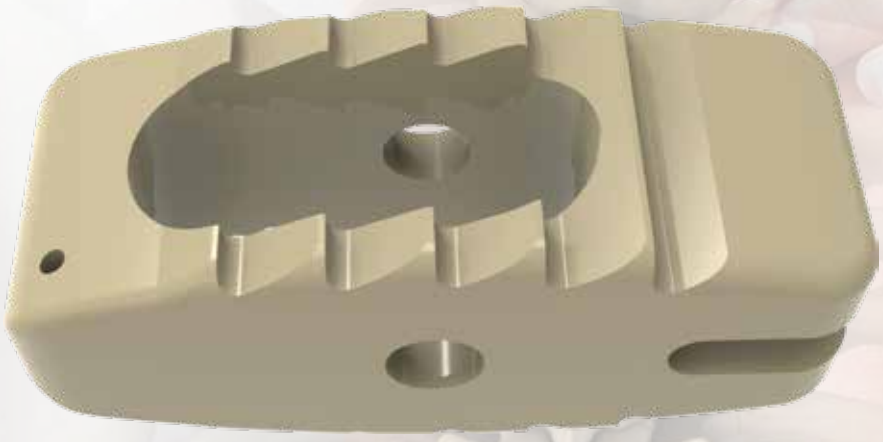
Balloon Inflation Pressure Pump Type I

Product Code	Capacity	Max Pressure	Inflator Feature
19001001	20	30	Equip with 10ml Inflator



Vertebral Body Dilatation Balloon Catheter

Product Code	Specification	Dia(mm)	Quantity
19003010	Ø6.0×10	Ø0.6	1
19003015	Ø6.0×15	Ø0.6	1
19003020	Ø6.0×20	Ø0.6	1
19003025	Ø6.0×25	Ø0.6	1
19003110	Ø6.0×10	Ø0.9	1
19003115	Ø6.0×15	Ø0.9	1
19003120	Ø6.0×20	Ø0.9	1
19003125	Ø6.0×25	Ø0.9	1



Builet™

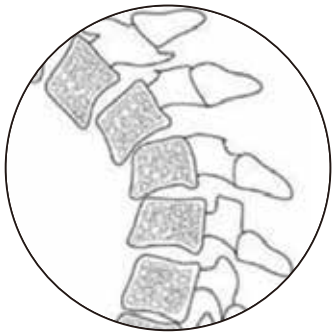
Cervical Laminoplasty System

Advantage

- "Bullet" type design, with automatic opening function.
- Hollow design, provide larger space for bone grafting.
- Double curved surface design, closer to the ultimate plate shape.
- Buckle type hold design, provide stability during implantation.

WASTONspine

INDICATION



Deformity

Degenerative disc disease

Grade 1

Grade 2

SURGICAL TECHNIQUE

1. Body position and incision

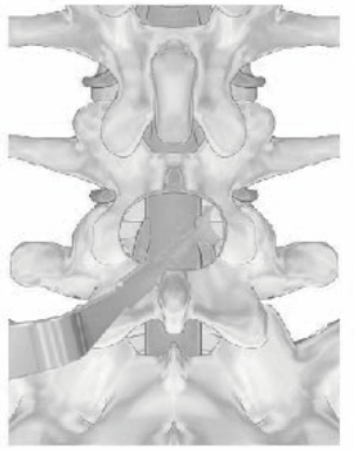
Prone position or knee-chest position, to form the nature lordotic spine. The posterior median openings, dissection of the soft tissue, and decompression of nerve root.

2. Implantation of pedicle screw

Both are ok to implant cage first or pedicle screw first, it according to each physician habits and specific patient selection, but orthopedic rod insertion must be done last.

3. Exposed the space outside intimae

Exposed the space outside intimae is the preparation for the next step: intervertebral disc excision and cage implantation.

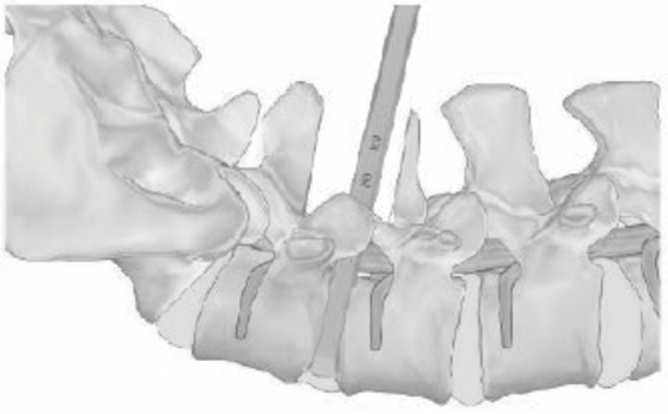


4. Intervertebral disc excision

Excise rear annulus fibrosus and clean nucleus pulposus carefully.

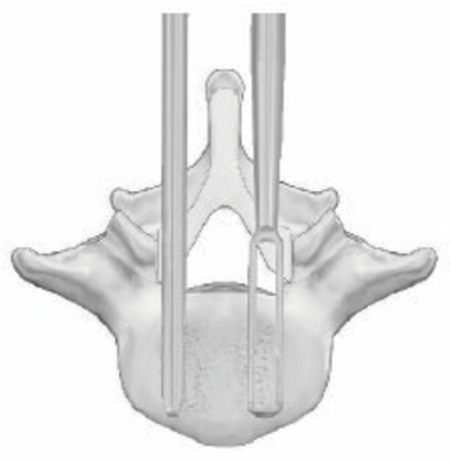
5. Open the intervertebral space

T-Handle connects with trail implant, insect the trail implant when it's plane parallel to end-plate.



6. Treatment of intervertebral disc

Insert the reamer on the offside of trail implant to clean intervertebral disc tissue, use bone rasp to clean vertebral cartilage.



Better to graft bone in the front of vertebra space before cage implantation. Use bone funnel and insertion device to graft bone effectively in intervertebral space.

7. Implanting cage

Using trail implant to determine the cage specification, grafting bone on the bone scaffold, and tapping it into intervertebral space slightly by looking or help of C-arm fluoroscopy machine.

8. Finish inner fixation

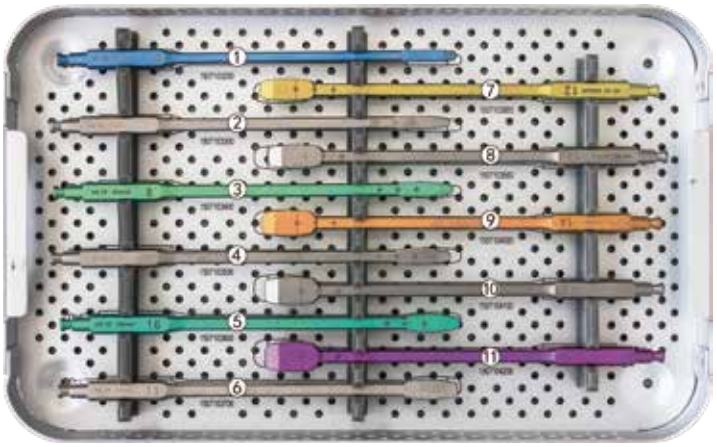
Implant the orthopedic rod, lock the compression nut, and finish the inner fixation of screw rod system.

IMPLANTS

Intervertebral Fusion Cage (Lumbar)

Product Code	Length(mm)	Breadth(mm)	Height(mm)
61602-006	20	10	6
61602-008			8
61602-010			10
61602-012			12
61606-007	22		7
61606-009			9
61606-011			11
61606-013			13
61610-008	26		8
61610-010			10
61610-012			12
61614-009	32		9
61614-011			11
61614-013			13

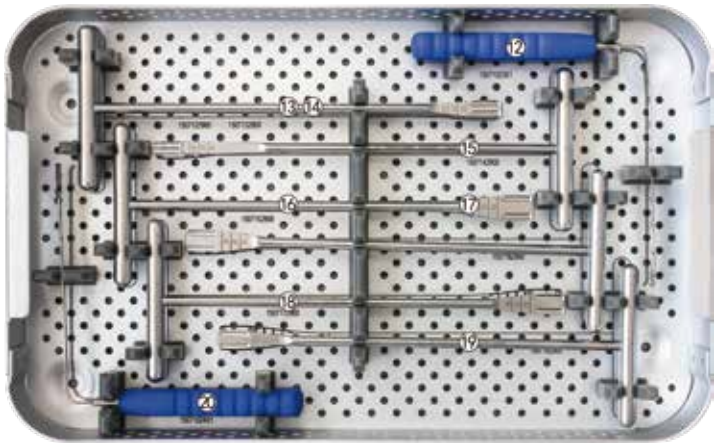
1507129900 Lumbar Vertebra System Instrument Set



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1507103200	Template	6mm	1
2	1507103300	Template	7mm	1
3	1507103400	Template	8mm	1
4	1507103500	Template	9mm	1
5	1507103600	Template	10mm	1
6	1507103700	Template	11mm	1
7	1507103800	Template	12mm	1
8	1507103900	Template	13mm	1
9	1507104000	Template	14mm	1
10	1507104100	Template	15mm	1
11	1507104200	Template	16mm	1

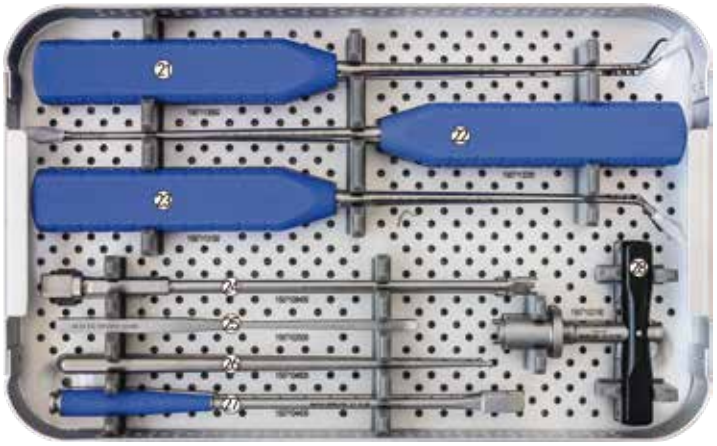
1507129900 Lumbar Vertebra System Instrument Set



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
12	1507102301	Thecal Sac Distractor	Small	1
13	1507112900	Bone Curette	7mm	1
14	1507122900	Bone Curette	8mm	1
15	1507132900	Bone Curette	9mm	1
16	1507142900	Bone Curette	10mm	1
17	1507152900	Bone Curette	11mm	1
18	1507162900	Bone Curette	12mm	1
19	1507172900	Bone Curette	13mm	1
20	1507102401	Thecal Sac Distractor	Large	1

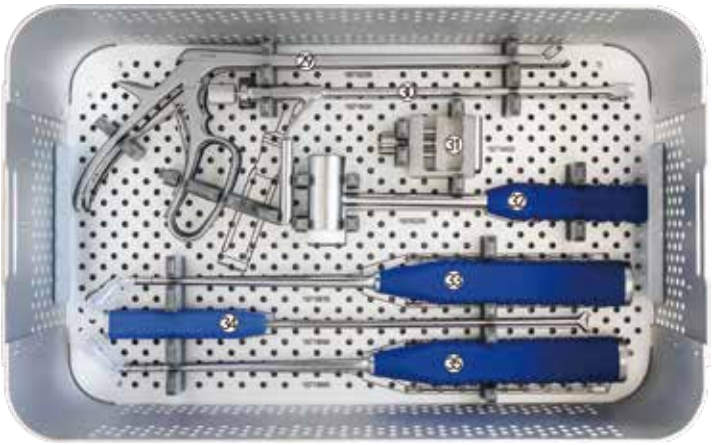
1507129900 Lumbar Vertebra System Instrument Set



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
21	1507113000	Bone Curette	8mm, Left	1
22	1507113200	Bone Curette	8mm, Straight	1
23	1507113100	Bone Curette	8mm, Right	1
24	1507108400	Cage Holding Forceps	Straight	1
25	1507102500	Nerve Root Distractor		1
26	1507104600	Bone Grafting Bracket		1
27	1507104400	Osteotome		1
28	1507102200	T-handle		1

1507129900 Lumbar Vertebra System Instrument Set



TRAY 4

Item NO.	Product Code	Instrument Name	Specification	Quantity
29	1507102200	Nucleus Pulposus Plier		1
30	1507104301	Cage Holding Forceps		1
31	1507104500	Bone Grafting Bracket		1
32	1507002200	Hammer		1
33	1507108700	Curved Bone Curette	Left	1
34	1507108500	Percussion Rod		1
35	1507108600	Curved Bone Curette	Right	1
36	1507120001	Instrument Case		1

Banana™

Cervical Laminoplasty System

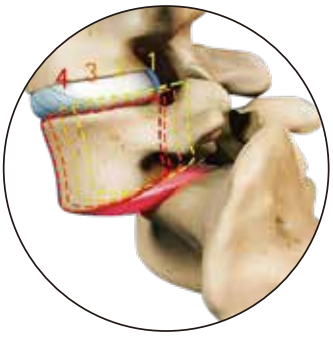
Advantage

- Anatomical shape.
- Pyramid teeth design, easy to fix.
- Three X-ray marker sticks, which can confirm the position of the implant under fluoroscopy
- Large bone graft window, increase the amount of bone graft, promote fusion.

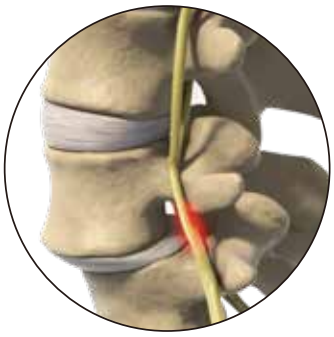
WASTONspine

INDICATION

Degenerative Disc Disease



Isthmic Spondylolisthesis



Degenerative Spondylolisthesis

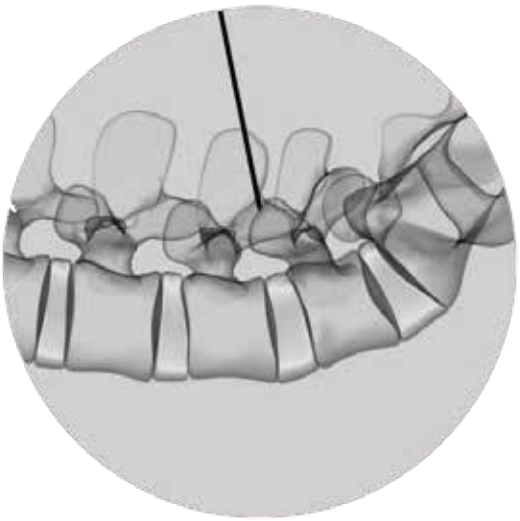
SURGICAL TECHNIQUE

1. Position the patient

Position the patient in a restored physiological lordosis and decompress the abdomen to minimize venous stasis.

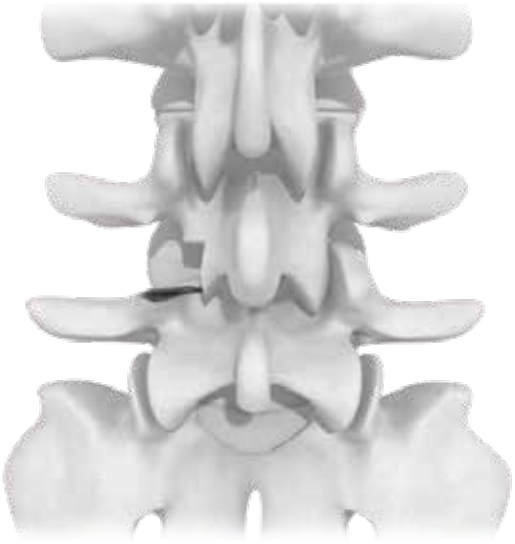
2. Approach

Locate the correct operative level with fluoroscopic views. Push the Kirschner wire into the desired facet joint. Separate the posterior soft tissue by inserting the smallest diameter dilator over the Kirschner wire. Repeat with next larger diameter dilator until required dilation is achieved. Use fluoroscopy to determine the location of dilator.



3. Cut transforaminal window

Prepare a window for the transforaminal approach using the osteotome to remove the inferior facet of the cranial vertebra and the superior facet of the caudal vertebra.
With the punch, additional bone or osteophytes can be removed.

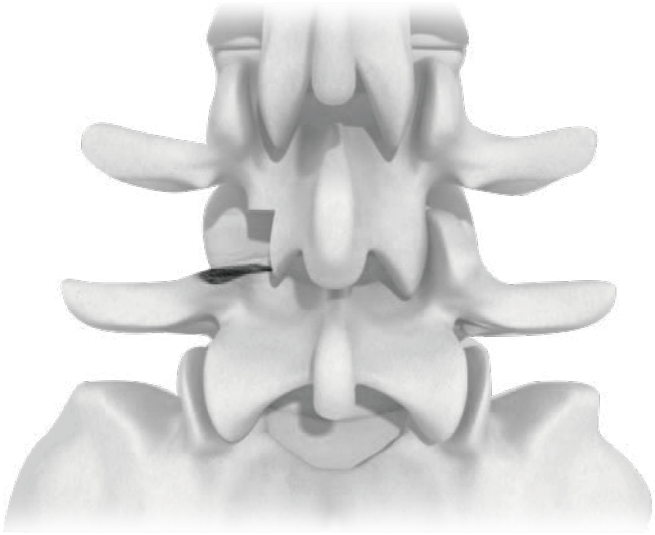


4. Retraction with an open transforaminal approach

Make a standard open incision, retract the muscle layer to view the desired segment.
Distract the segment if desired. Position the distractor at the base of the spinous processes.
Distract carefully until required distraction is achieved.
Distraction opens the posterior disc space and promotes exposure both for decompression and delivery of the implant.

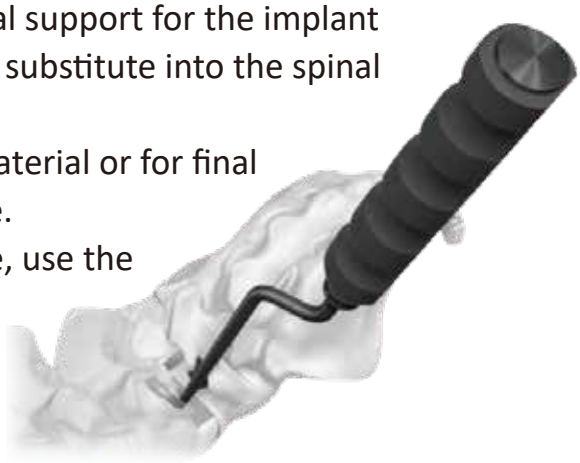
5. Cut transforaminal window

Prepare a window for the transforaminal approach using the osteotome to remove the inferior facet of the cranial vertebra and the superior facet of the caudal vertebra.
With the laminectomy punch, additional bone or osteophytes can be removed.



Through an incision above the pedicle, access the foramen and remove disc material, using any of the following instruments: square and round scratch, rongeurs as well as disc shavers.

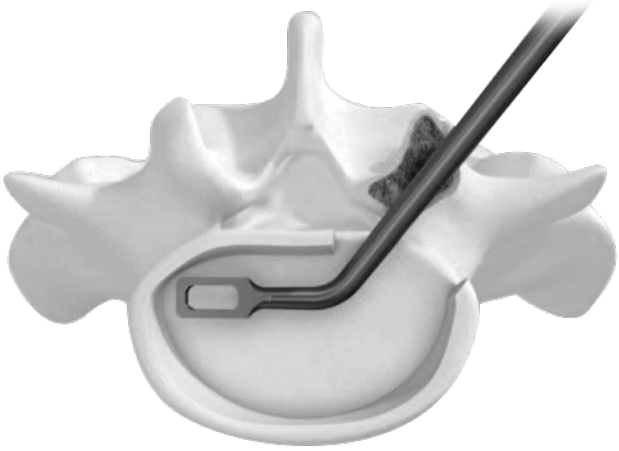
The annulus must be preserved to provide additional support for the implant and prevent migration of bone graft and bone graft substitute into the spinal canal.



The shavers can initially be used to ream out disc material or for final removal of the disc material and cartilaginous tissue.

For removal of the tissue in the far lateral disc space, use the left/right angled scratch and the curved rongeur.

Important: Provide enough lateral exposure to the disc to minimize dural retraction.



6. Prepare endplates

When the discectomy is completed, use the rasp to remove the superficial cartilaginous layers of the endplates to expose the bleeding bone.

Important: Excessive removal of the subchondral bone may weaken the vertebral endplate. The entire removal of the endplate may result in subsidence and a loss of segmental stability.

7. Pack disc space

Before the cage is implanted, the anterior and far lateral disc space should be filled with bone graft or bone graft substitute.

8. Assemble applicator and connect non detachable trial implant

The applicator must be assembled before insertion of the trial.

Attach the applicator knob to the proximal end of the applicator outer shaft by turning the knob counterclockwise until it stops (1).

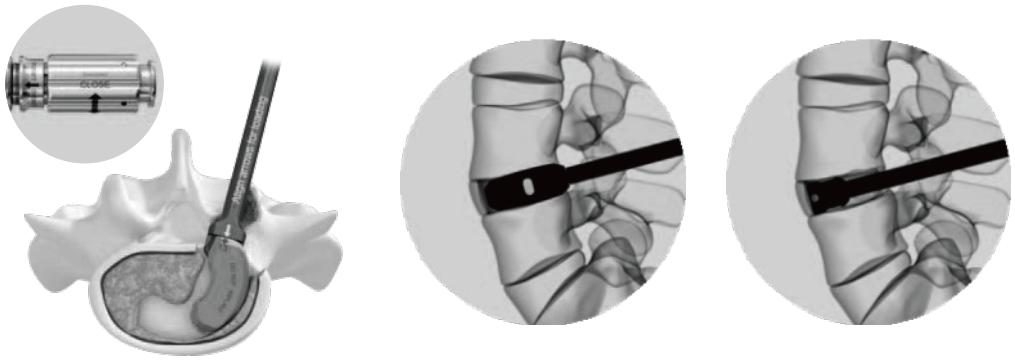
Select an appropriately size trial implant. Insert the trial implant shaft into the applicator outer shaft making sure that the arrow on the outer shaft is aligned with the distal opening of the trial implant shaft (2). The trial implant shaft should now be trapped inside the applicator outer shaft (3).

Turn the applicator knob clockwise to secure the trial implant. During this attaching procedure the security ring moves upwards, so that the green color band is visible. Continue to turn the knob until it is tightened.

9. Insert template

Insert the template into the disc space, ensuring that the orientation of the template is correct. The template tip should be orientated medial.

Use fluoroscopy to confirm position and fit of the trial implant. The tip should be positioned near the anterior edge of the adjacent vertebral bodies .



10. Select Implant

Select the implant that corresponds to the height and size measured using the template in the previous steps.

Insert the selected implant into bone grafting bracket.

11. Pack implant with bone graft

Use the device to firmly pack the filling material into the implant cavities .

Make sure the implant is well placed in the bracket to avoid implant damage while bone graft filling.

12. Connect implant to the applicator

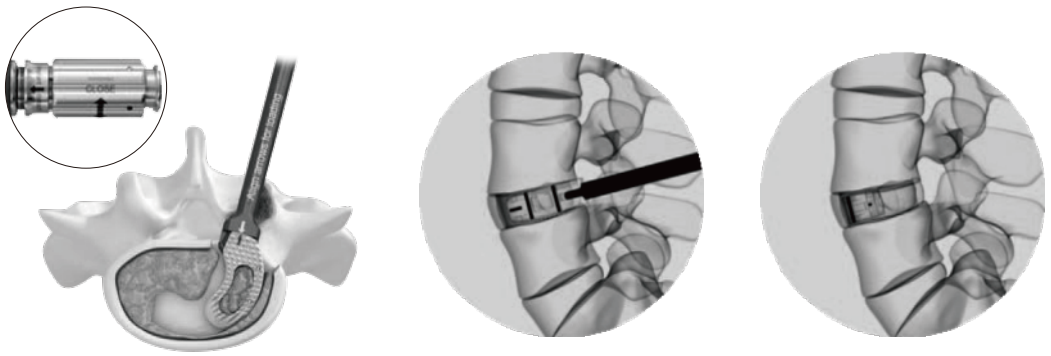
Pull the security ring down and simultaneously turn the knob at the proximal end of the applicator counterclockwise. The applicator jaws open . Place the jaws over the proximal end of the implant making sure to align the arrows on the end of the applicator with those on the implant.

Turn the applicator knob clockwise to close the jaws. During this closing procedure the security ring moves upwards, so that the green color band is visible. Continue to turn the knob until it is tightened.

13. Insert implant

Recheck the firm connection of implant to applicator. Insert the implant into the disc space, ensuring that the orientation of the implant is correct. The implant tip should be orientated medial. Maintain 10 – 15° between the applicator handle and the sagittal plane during implant insertion (1). Controlled and light hammering on the applicator may be required to advance the implant into the intervertebral disc space.

Use fluoroscopy to confirm position and fit of the implant. The tip should be positioned near the anterior edge of the adjacent vertebral bodies (2).



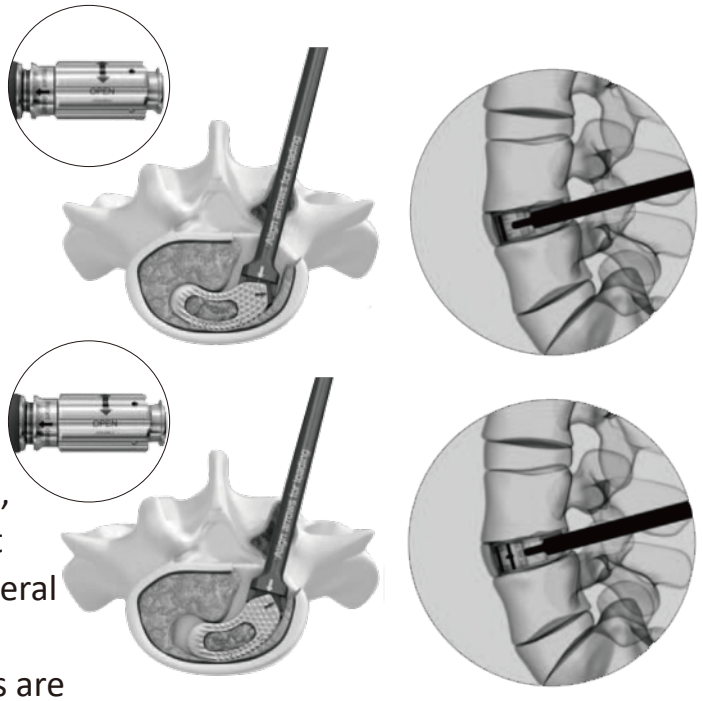
14. Position implant

Controlled and light hammering on the applicator may berequired to pivot the implant into final position (2).

Use fluoroscopy during the pivoting procedure and confirm fit and position of the implant.

With a medial/lateral fluoroscopic image of the cage in the final position, the two anterior pins of the implant should appear as one line.

In an anterior/posterior fluoroscopic image, the two anterior pins should be equidistant to the pedicles. The tip pin indicates the lateral edge of the implant.



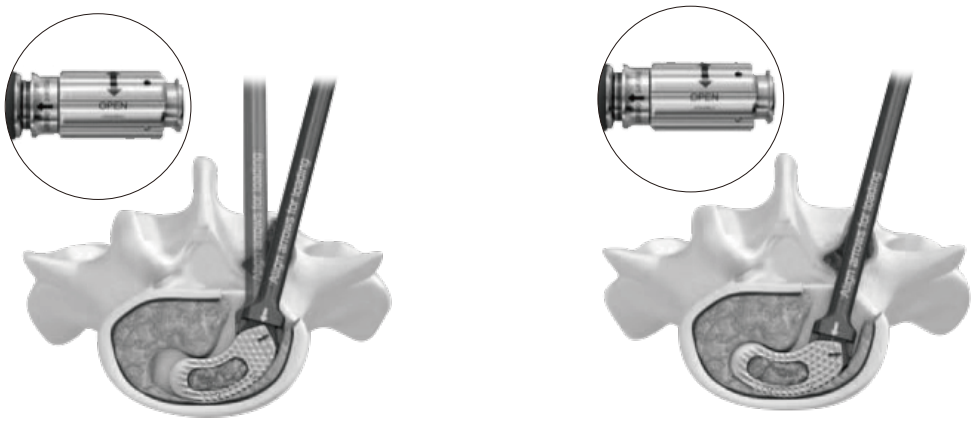
Note: If bone graft or bone graft substitutes are placed into the disc space after trialing, the implant may not reach the same position as the trial.

Important: Maintain 10 – 15° between the applicator handle and the sagittal plane during implant insertion.

15. Optional: Position implant

If implant does not pivot automatically, turn the applicator handle medially to initiate pivoting upon impaction (1). After pivoting is initiated the applicator handle must be turned back to an angle of 10 – 15° from the sagittal plane to pivot the implant into final position (2).

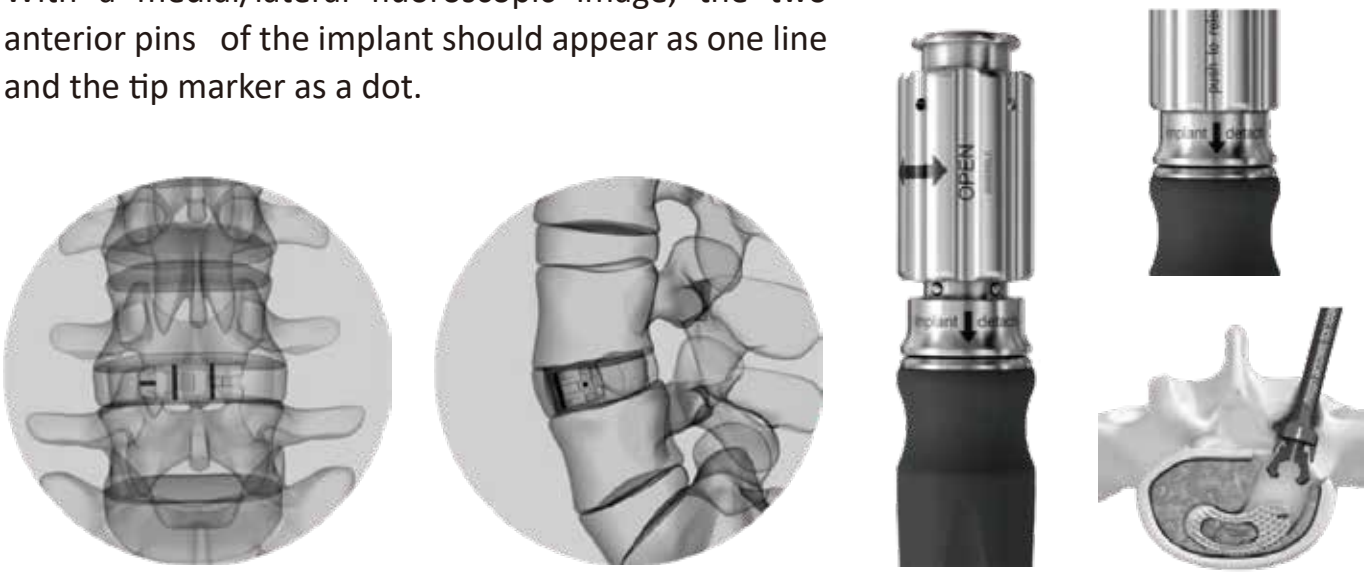
Important: Maintain 10 – 15° between the applicator handle and the sagittal plane for final implant insertion.



16. Detach implant

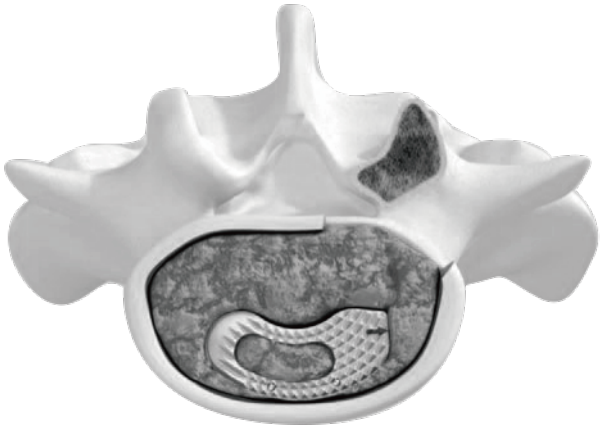
To detach the implant, pull the security ring down and simul- taneously turn the applicator knob counterclockwise until it stops. The applicator can now be removed from the implant.

Use fluoroscopy to verify final position of the implant. With a medial/lateral fluoroscopic image, the two anterior pins of the implant should appear as one line and the tip marker as a dot.



17. Pack disc space

After the cage is implanted, fill the posterior disc space and the lateral disc space with bone graft or bone graft substitute to create optimal conditions for fusion.



18. Implant removal with the applicator

Ensure that the applicator is in the fully open position. Locate the implant and close the applicator by turning the knob clockwise until the security ring is moving upwards. There should be no gap between the applicator knob and the security ring. To ensure that the knob is in contact with the security ring, turn the knob counterclockwise until it stops, in this position the implant can pivot but not detach from the applicator. The implant can now be removed. The slap hammer may be required to facilitate removal.

Note: Distraction of the segment may facilitate implant removal. However, if possible, do not distract before ensuring a firm connection between the implant and the applicator.

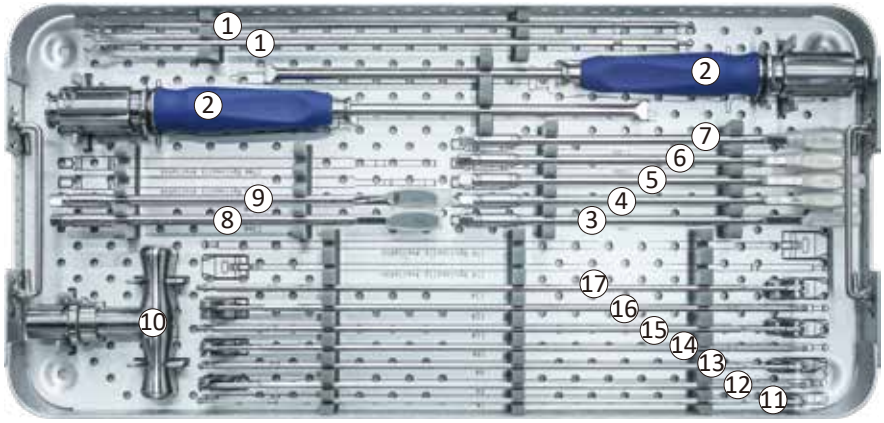
Important: The applicator must be in the pivoting position to remove the implant.

Banana Intervertebral Fusion Cage (Lumbar)

Product Code	Length(mm)	Breadth(mm)	Height(mm)
61631-007	28	10	7
61631-008			8
61631-009			9
61631-010			10
61631-011			11
61631-012			12
61631-013			13
61631-015			15
61631-017			17
61631-007	31	12	7
61631-008			8
61631-009			9
61631-010			10
61631-011			11
61631-012			12
61631-013			13
61631-015			15
61631-017			17

INSTRUMENTS

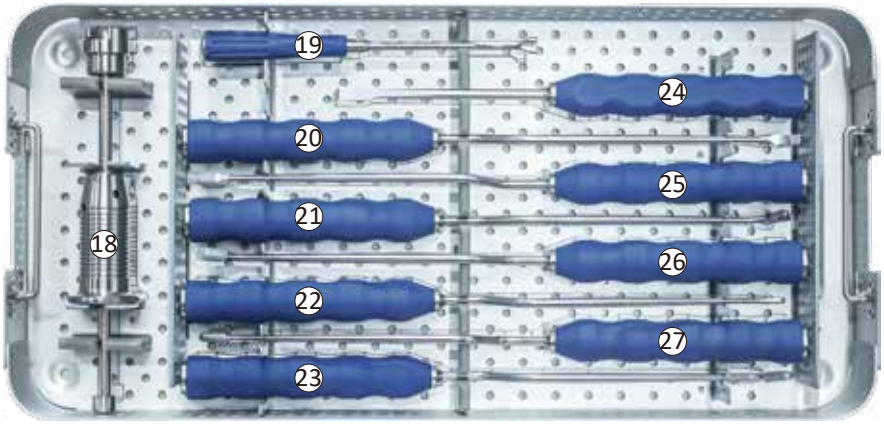
1507149900 Banana Intervertebral Fusion System Instrument Set



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1507107800	Applicator Inner Shaft		2
2	1507107700	Applicator Outer device		2
3	1507104800	Shaver	7mm	1
4	1507104900	Shaver	8mm	1
5	1507105000	Shaver	9mm	1
6	1507105100	Shaver	10mm	1
7	1507105200	Shaver	11mm	1
8	1507105300	Shaver	12mm	1
9	1507105400	Shaver	13mm	1
*	1507105500	Shaver	15mm	1
*	1507105600	Shaver	17mm	1
10	1507106700	T-shaped Quick coupling handle		1
11	1507106800	Template	28*10*7	1
12	1507106900	Template	28*10*8	1
13	1507107000	Template	28*10*9	1
14	1507107100	Template	28*10*10	1
15	1507107200	Template	28*10*11	1
16	1507107300	Template	28*10*12	1
17	1507107400	Template	28*10*13	1
*	1507107500	Template	28*10*15	1
*	1507107600	Template	28*10*17	1

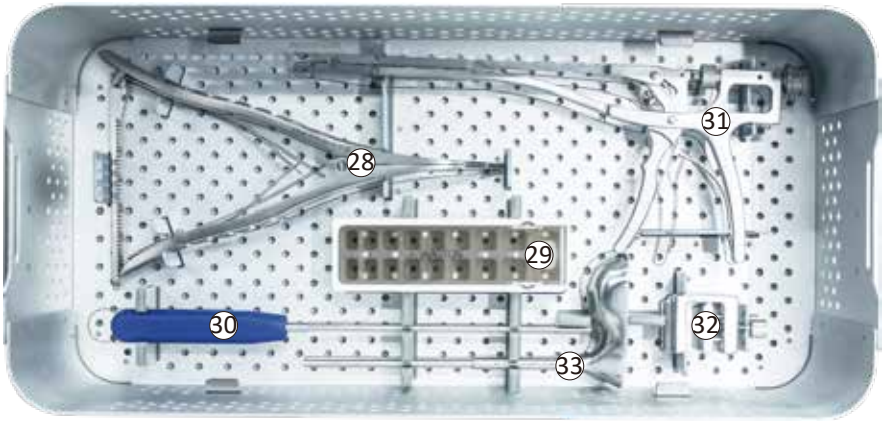
1507149900 Banana Intervertebral Fusion System Instrument Set



TRAY 2

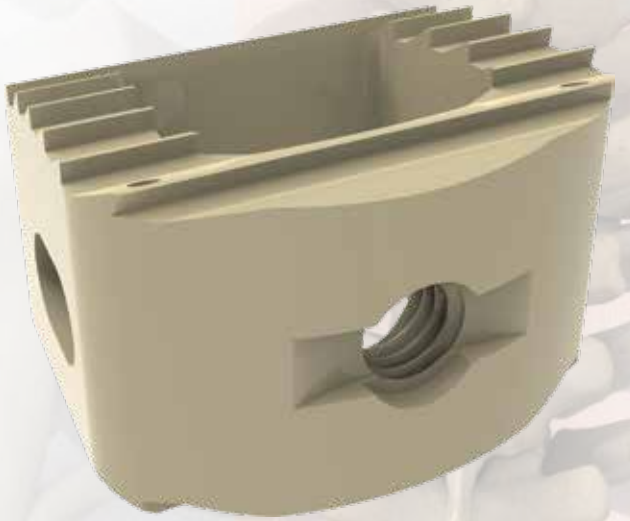
Item NO.	Product Code	Instrument Name	Specification	Quantity
18	1507105700	Sliding Hammer		1
19	1507105800	Compaction device		1
20	1507106600	Intervertebral bone grafting shaft		1
21	1507106400	Square Scratch	Left curved	1
22	1507106200	Round Scratch		1
23	1507106000	Rasp	Curved	1
24	1507105900	Osteotome	8mm	1
25	1507106500	Square Scratch		1
26	1507106300	Square Scratch	Right curved	1
27	1507106100	Doube sided bone file	Straight	1

1507149900 Banana Intervertebral Fusion System Instrument Set



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
28	1507104700	Distractor		1
29	1507108300	Cage case		1
30	1507108200	Bone gafting device5.0		1
31	1507107900	Extractor		1
32	1507108000	Bone grafting bracket		1
33	1507108100	Bone grafting funnel		1
34	1507140000	Instrument Case		1



Wave™

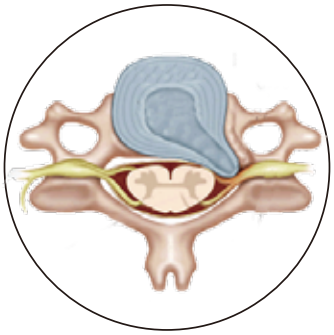
Cervical Laminoplasty System

Advantage

- Teeth on the superior and inferior implant surfaces provide initial stability.
- Using high-brightness developing alloy material, improve the products shape
- judgment after implantation.
- Hollow design provides larger space for bone grafting.
- Optimized handle design, improve product support capability.
- A variety of specifications are available during operation.

WASTONspine

INDICATION



Cervical intervertebral disc rupture or protrusion

Degenerative disc disease

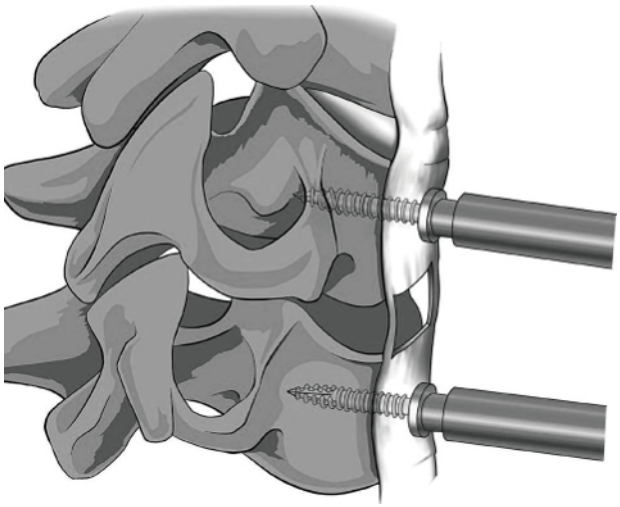
SURGICAL TECHNIQUE

1. Exposure

Incision on the anterolateral of anterior cervical.

2. Vertebral distraction

Expand diseased vertebral to normal gap height.

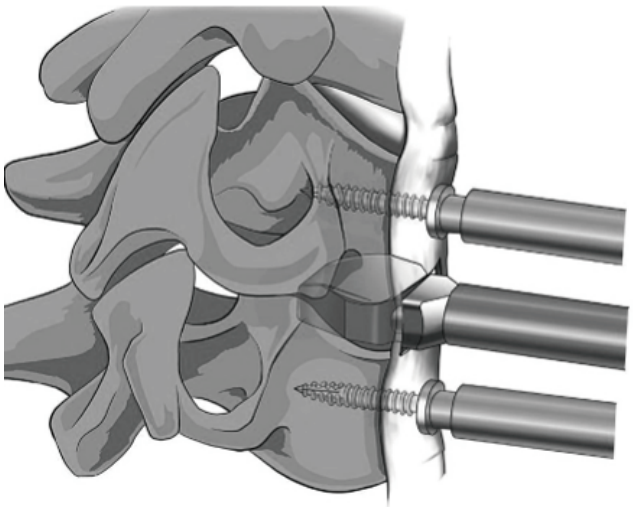


3. Lamina treatment

Scrape the layer of cartilage with bone curette (ring curette and elbow curette are close-able), and expose the bone surface. Appropriate carrying out of this process will provide adequate blood supply for grafting bone inside the cage, and reduce sedimentation rate of cage. Then cut off osteophyte on posterior vertebral, to reduce pressure and supply implantation space for cage.

4. Choose suitable cage

According to the preoperative measurement of intervertebral disc height and endplate form saw in operation, select trail implant's appropriate height and lock it on the implant holder. Implant trail implant into intervertebral space, check its location by X-ray and whether it matches with endplate, it should try a bigger one if trial implant not matches with upper and lower endplates. Considering the tension effect of ligament and annulus fibrosus, it must use bigger cage to ensure the stability of the height of intervertebral space. Meanwhile the limited device ensure the implantation does not too deep.



5. Cage installation

Put selected cage on implant holder

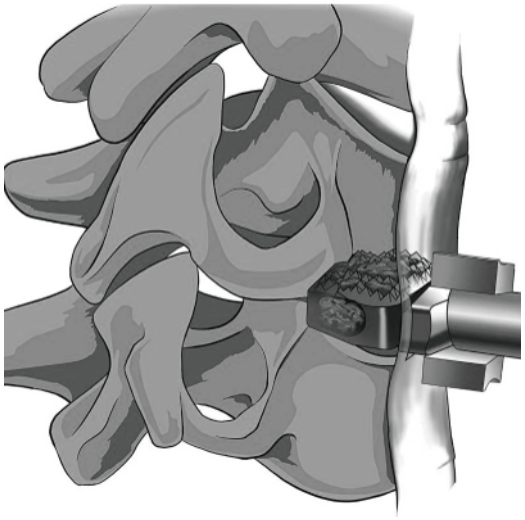
6. Filling bone graft

Put cage into compactor box, load the prepared cancellous bone or artifical bone into cage through the round hole on top of compactor box, and then use the compactor to compact bone fully until the cancellous bone or artificial bone overflows from many holes of cage.

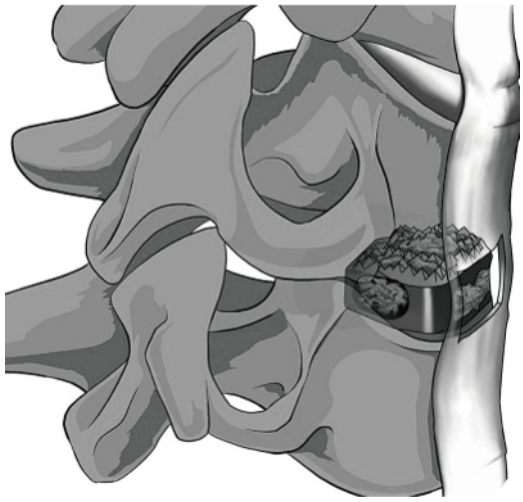
7. Cage implantation

In case of vertebral be distracted, implant the bone-graft cage into intervertebral space which has been treated already.

The best implantation position: should be completely into the intervertebral space, and cage leading edge should be 2mm away from vertebral leading edge inner side, at the same time its midline should be aligned with the midline of the vertebral body. Meanwhile the limited device ensure the implantation does not too deep.



8. X-ray checking, release bracing position

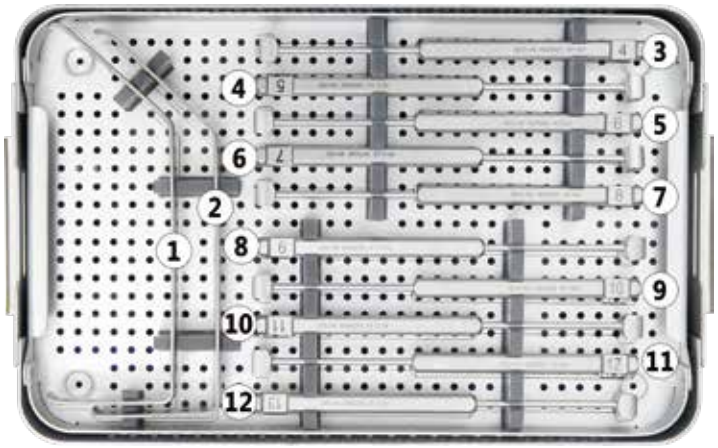


Intervertebral Fusion Cage (Cervical)

Product Code	Length(mm)	Breadth(mm)	Height(mm)
61621-004	11	14	4
61621-005			5
61621-006			6
61621-007			7
61621-008			8
61621-009			9
61621-010			10
61621-011			11
61621-012			12
61621-013			13

INSTRUMENTS

1507029900 Cervical Vertebra System Instrument Set

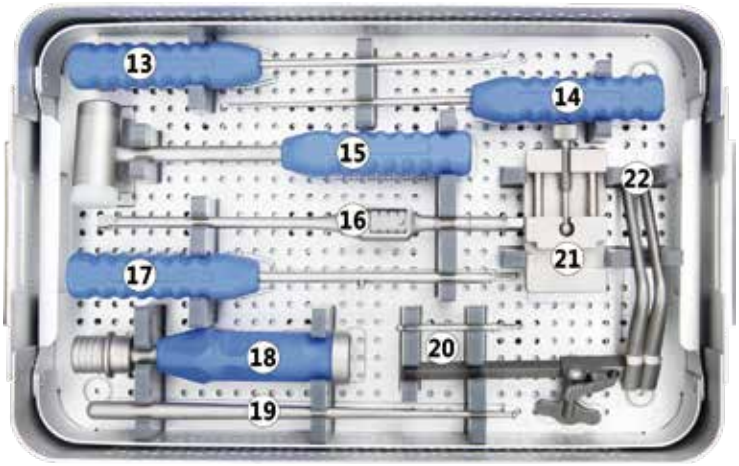


TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1507003700	Hook (Large)	Large	1
2	1507003800	Hook (Small)	Small	1
3	1507002300	Template	4*14*11mm	1
4	1507002400	Template	5*14*11mm	1
5	1507002500	Template	6*14*11mm	1
6	1507002600	Template	7*14*11mm	1
7	1507002700	Template	8*14*11mm	1
8	1507002800	Template	9*14*11mm	1
9	1507002900	Template	10*14*11mm	1
10	1507003000	Template	11*14*11mm	1
11	1507003100	Template	12*14*11mm	1
12	1507003200	Template	12*14*11mm	1

INSTRUMENTS

1507029900 Cervical Vertebra System Instrument Set



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
13	1507003600	Bone Curette	Curved	1
14	1507003500	Bone Curette	Straight	1
15	1507002000	Hammer		1
16	1507002000	Cage Holding Forceps		1
17	1507004100	Distractor Screwdriver		1
18	1502600200	Straight Handle		1
19	1507003400	Bone Grafting Device		1
20	1507004000	Distractor		2
21	1503500700	Bone Grafting Bracket		1
22	1507003900	Distractor		1
23	1507020000	Instrument Case		1

Zero-X™

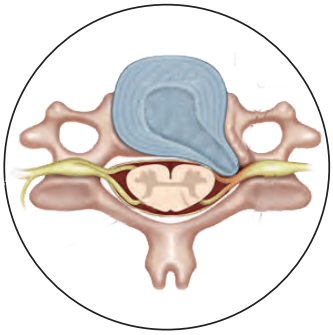
Cervical Laminoplasty System

Advantage

- Spacer doesm't extend beyond the confines of the intervertebral disc space, limiting the risk of damage to vessels and adjacent soft tissues.
- Prevent contact with adjacent levels in case future complications.
- The plate and spacer are preassembled, whic is automatically aligned upon implant insertion.
- Teeth on the superior and inferior implant surfaces provide initial stability.
- Provides a secure, rigid screw locking interface.

WASTONspine

INDICATION



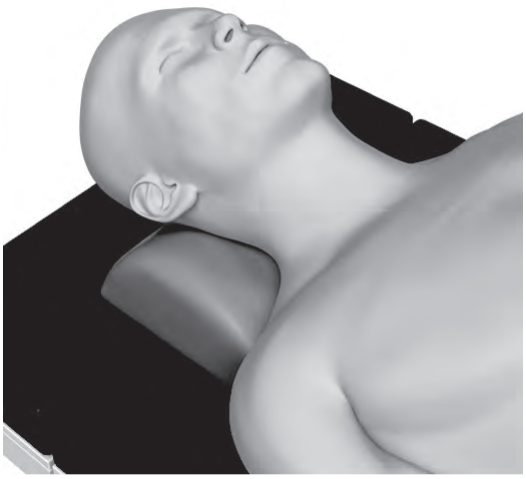
Cervical intervertebral disc rupture or protrusion

Degenerative disc disease

SURGICAL TECHNIQUE

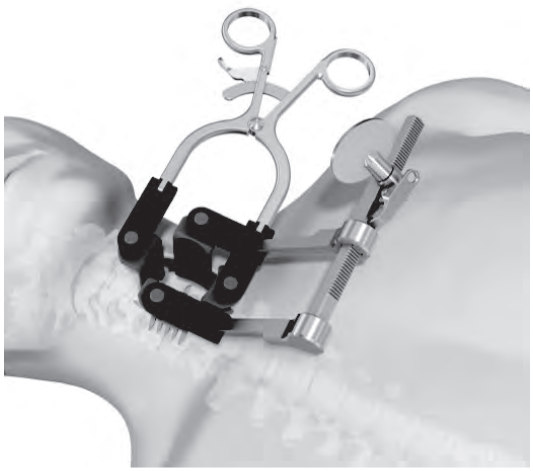
1. Patient Positioning

Using the standard surgical approach, expose the vertebral bodies to be fused. Prepare the fusion site following the appropriate technique for the given indication.
Position the patient in a supine position on a radiolucent operating table. Ensure that the neck of the patient is in a sagittally neutral position and supported by a cushion. When treating C6 – C7 make sure that the shoulders do not limit the x-ray monitoring.
For all cases, both vertebrae should be completely visible on radiographic imaging.



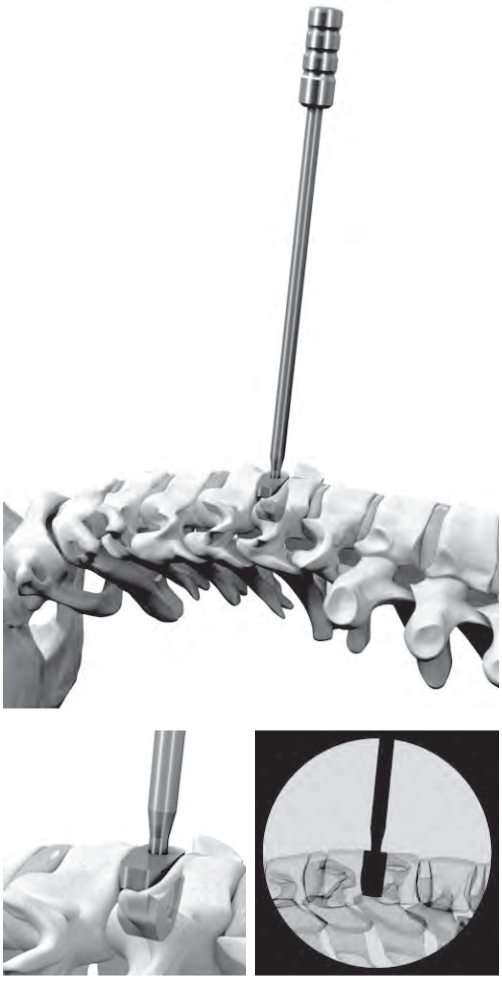
2. Access

Locate the correct operative level using radiographic imaging.
Expose the intervertebral disc and the adjacent vertebral bodies through a standard anterior approach to the cervical spine.
Precaution: Careful positioning of the retractor is required to protect against soft tissue damage.



3. Determine appropriate implant

Selection of the trial spacer depends on the height and depth of the intervertebral space, the preparation technique and the patient's anatomy. Choose a wedged or curved trial spacer of the appropriate height and depth.
Position the trial spacer in the correct cranial/caudal alignment and carefully insert it into the disc space.
The mallet can be used to help insert and/or remove the trial spacer.
If preferred, a larger handle can be attached to the trial spacer.



Precaution: The trial spacers do not have a depth limiter; an image intensifier should be used to check the position during insertion. With the segment fully distracted, the trial spacer should fit tightly between the end plates. Choose the appropriate implant footprint and size to accommodate variations in patient anatomy; failure to do so may injure the patient.

Warning: To minimize potential risk to the patient, it is recommended to use shorter height trial spacers before using taller height trial spacers, and to use standard size footprint trial spacers before using large size footprint trial spacers.

4. Pack implant with bone graft

It is recommended to pack the ZERO-X implant with bone or bone graft substitute. Place the appropriate ZERO-X implant into the packing block.
Use the cancellous bone impactor to firmly pack graft material into the implant cavity.

5. Insert implant

Use the aiming device or implant holder to introduce the implant into the disc space. The recommended orientation is with the medial screws pointing caudally.
Precaution: The aiming device and the implant holder do not have a depth limiter; therefore, an image intensifier should be used to check the position while inserting.
Using the aiming device
Attach the aiming device to the implant by aligning the screw holes of the implant with the retention features on the aiming device and then expanding the aiming device. Once the implant is securely attached, carefully insert the implant into the distracted segment.
If necessary, the top of the aiming device can be tapped with the mallet to advance the implant into the disc space. If distraction has been applied, release the distraction while leaving the aiming device attached to the implant.

Using the implant holder

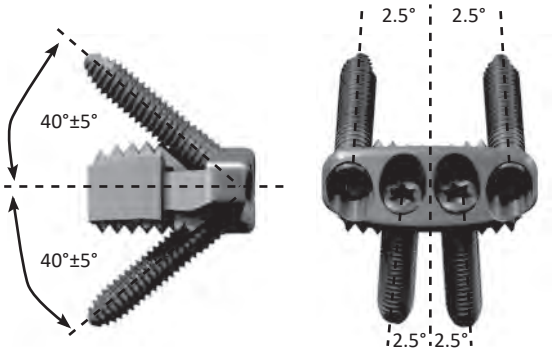
The implant can be inserted into the disc space with the forceps-type implant holder. Once the implant is partially introduced into the disc space the implant can be advanced to the correct posterior depth using the flat impactor and/or the impactor with ball tip.

Warning: Verify final implant position relative to the vertebral bodies in the AP and lateral views using intraoperative imaging. The PEEK cage has a single posterior radiopaque marker incorporated into the implant to enable intraoperative radiographic assessment of the implant position.

6. Screw fixation

Option A: Aiming device

The aiming device allows one screw to be inserted with the instrument attached to the implant. This helps to keep the implant in place while the other screw holes are prepared and screws inserted.



A1. Drill first pilot hole through drill and screw hole of aiming device

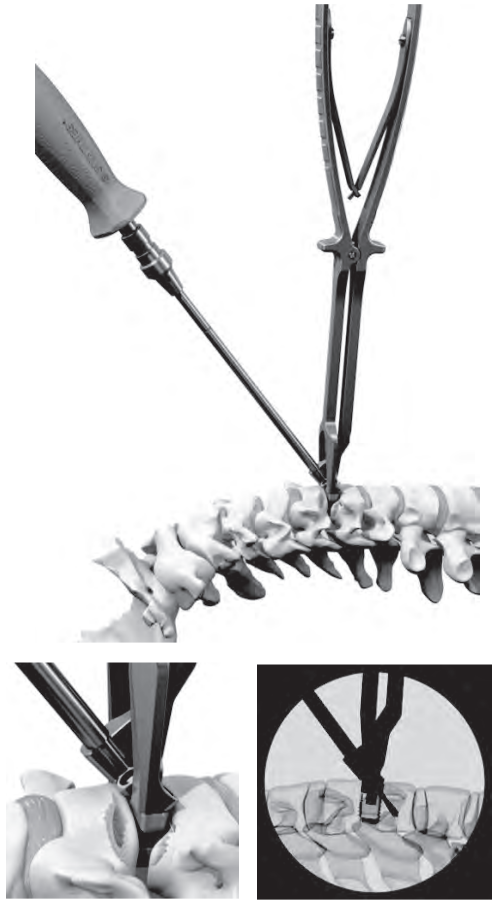
Select a drill bit of appropriate length. Insert the drill bit into the drill and screw hole of the aiming device and drill until the stop on the drill bit contacts the guide.

Warning: Intraoperative imaging should be used to verify drill position.

Remove drill bit.

Note: The drill bits are marked with a colored ring corresponding to the color-coded screw lengths.

Precaution: When using the drill bit in combination with the aiming device, take care to apply only axial forces to the drill bit. Bending forces applied when the tip of the drill bit is engaged in the aiming device can lead to the drill bit breaking.



A2. Insert first screw

Select the appropriate screw length according to the preoperative planning and intraoperative findings.
Assemble the torque limiter to the screwdriver shaft and handle.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Load a screw onto the screwdriver with torque limiter. The screwdriver is designed to be self-retaining. Alternatively, the holding sleeve may also be used for screw retention.
Note: Retract the sleeve when inserting the first screw through the aiming device.
Advance the screw until the head of the screw contacts the plate.
Warning: Intraoperative imaging should be used to verify screw position.
Precaution: The screws should be tightened only after all screws have been inserted.

A3. Drill remaining pilot holes

Select a drill bit of appropriate length. Insert the drill bit into a drill hole of the aiming device and drill until the stop on the drill bit contacts the guide.
Warning: Intraoperative imaging should be used to verify drill position.
Remove the drill bit.
Repeat for the remaining screw holes.
Note: The drill bits are marked with a colored ring corresponding to the color-coded screw lengths.
Precaution: When using the drill bit in combination with the aiming device, take care to apply only axial forces to the drill bit. Bending forces applied when the tip of the drill bit is engaged in the aiming device can lead to the drill bit breaking.

A4. Insert remaining screws

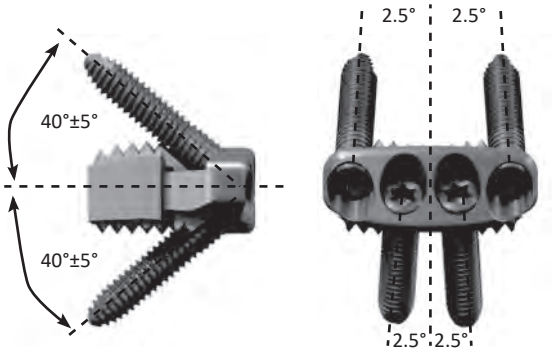
Remove the aiming device from the implant.
Load a screw onto the screwdriver with torque limiter. The screwdriver is designed to be self-retaining. Alternatively, the holding sleeve may also be used for screw retention.
Advance the screw until the head of the screw contacts the plate.
Repeat for the remaining screws.
Warning: Intraoperative imaging should be used to verify screw position.
Precaution: The screws should be tightened only after all screws have been inserted.
Note: If the aiming device is difficult to remove, verify that the screw is advanced far enough so that the aiming device is not contacting the screw during removal.

A5. Tighten screws

To lock the screwhead in the plate, always use the torque limiter with the screwdriver to tighten each screw to the recommended 1.2 Nm torque.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Note: Screws placed using the surgical technique may not always be flush with the plate, but will be sufficiently locked when 1.2 Nm torque is achieved.

7. Screw fixation option B:
Drill guide and freehand screw

If use of the aiming device is not the preferred surgical technique, follow these alternative technique steps.



B1. Drill first pilot hole

It is recommended that the first hole be created for a caudally pointing screw.

Select a drill bit of appropriate length. Determine the entry point and trajectory for the screw. The correct angulations for the screws are 40° in the caudal or cranial direction. The medial screws point 2.5° laterally and the lateral screws point 2.5° medially.

Note: Lateral screws should always point medially.

Insert the drill guide into the screw hole at the appropriate angle. The tip of the drill guide is designed to fit inside the screw hole of the plate and guide the correct angle.

Insert the drill bit into the guide and drill until the stop on the drill bit contacts the guide.

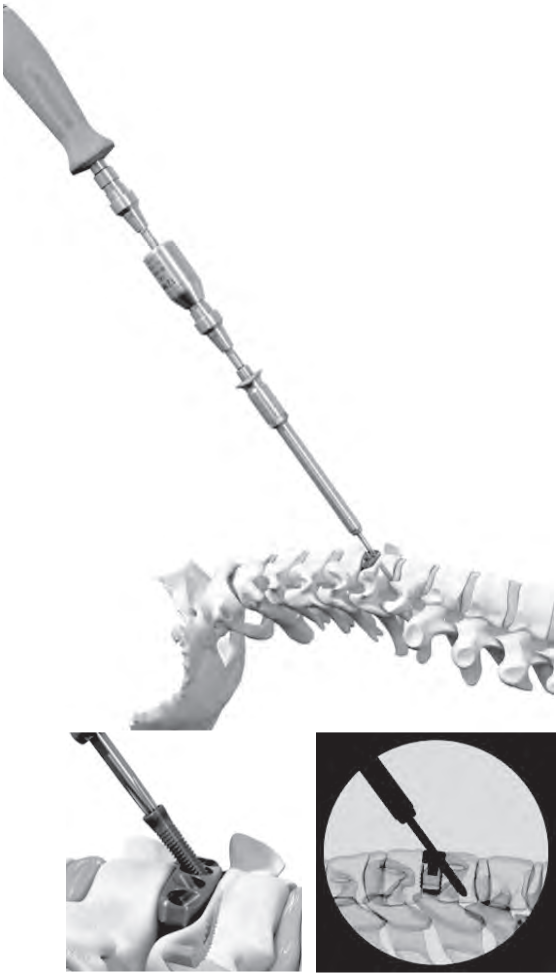
Remove the drill bit and guide.

Warning: Intraoperative imaging should be used to verify drill position.

Note: The drill bits are marked with a colored ring corresponding to the color-coded screw lengths. When the ring is flush with the top of the drill guide the appropriate depth has been reached.

B2. Insert first screw

Select the appropriate screw length according to the preoperative planning and intraoperative findings.
Assemble the torque limiter to the screwdriver shaft and handle.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Load a screw onto the screwdriver with torque limiter. The screwdriver is designed to be self-retaining. Alternatively, the holding sleeve may also be used for screw retention.
Note: Retract the sleeve when inserting the first screw through the aiming device.
Advance the screw until the head of the screw contacts the plate.
Warning: Intraoperative imaging should be used to verify screw position.
Precaution: The screws should be tightened only after all screws have been inserted.



B3. Insert remaining screws

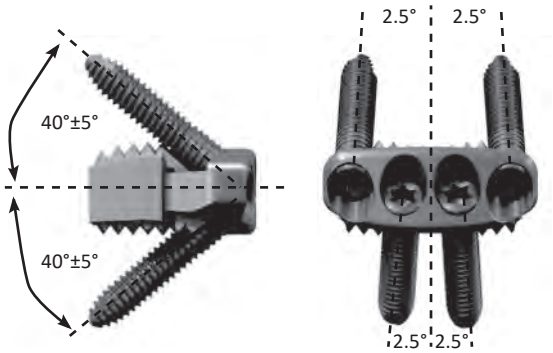
Repeat steps B1 and B2 for the remaining screws.

B4: Tighten screws

To lock the screwhead in the plate, always use the torque limiter with the screwdriver to tighten each screw to the recommended 1.2 Nm torque.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Note: Screws placed using the surgical technique may not always be flush with the plate, but will be sufficiently locked when 1.2 Nm torque is achieved.

8. Screw fixation option C:

Threaded drill guide and freehand screw



C1. Drill first pilot hole

It is recommended that the first hole be created for a caudally pointing screw.

Determine the trajectory for the threaded drill guide. The correct angulations are 40° in the caudal or cranial direction.

Screw the threaded drill guide into the thread of the ZERO-X plate at the appropriate angle until 2-finger tight. The thread of the drill guide is designed to fit inside the thread of the ZERO-X plate.

Determine a drill bit of appropriate length. Insert the drill bit into the guide and drill until the stop on the drill bit contacts the guide.

Remove the drill bit and the threaded drill guide.

Warning: Intraoperative imaging should be used to verify drill position.

Note: The drill bits are marked with a colored ring corresponding to the color-coded screw lengths. When the ring is flush with the top of the drill guide the appropriate depth has been reached.

C2. Insert first screw

Select the appropriate screw length according to the preoperative planning and intraoperative findings.
Assemble the torque limiter to the screwdriver shaft and handle.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Load a screw onto the screwdriver with torque limiter. The screwdriver is designed to be self-retaining. Alternatively, the holding sleeve may also be used for screw retention.
Note: Retract the sleeve when inserting the first screw through the aiming device.
Advance the screw until the head of the screw contacts the plate.
Warning: Intraoperative imaging should be used to verify screw position.
Precaution: The screws should be tightened only after all screws have been inserted.

C3. Insert remaining screws

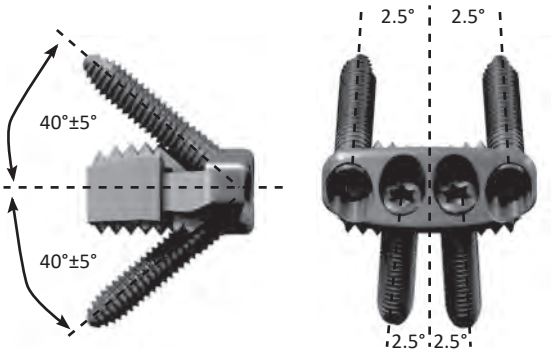
Repeat steps C1 and C2 for the remaining screws.

C4. Tighten screws

To lock the screwhead in the plate, always use the torque limiter with the screwdriver to tighten each screw to the recommended 1.2 Nm torque.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Note: Screws placed using the surgical technique may not always be flush with the plate, but will be sufficiently locked when 1.2 Nm torque is achieved.

8. Screw fixation option D: Awl and freehand screw

If surgeon preference is to awl and not to use the drilling technique, this alternative technique may be used.



D1. Awl first pilot hole

It is recommended that the first hole be created for a caudally pointing screws.

Determine the entry point and trajectory for the screw. The correct angulations for the screws are 40° in caudal or cranial direction. The medial screws point 2.5° laterally and the lateral screws point 2.5° medially.

Note: Lateral screws should always point medially.

Insert the awl at the appropriate angle into a screw hole in the plate and push down, while simultaneously twisting the handle. Remove the awl, maintaining alignment of the hole and plate.

Warning: Intraoperative imaging should be used to verify awl position.

Note: The tip of the awl is designed to fit inside the screw hole of the plate and guide the correct angle.

Precaution: Take care that the awl does not move the implant relative to the vertebral body. For particularly hard bone, drilling is recommended to minimize implant movement.

D2. Insert first screw

Select the appropriate screw length according to the preoperative planning and intraoperative findings.
Assemble the torque limiter to the screwdriver shaft and handle.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Load a screw onto the screwdriver with torque limiter. The screwdriver is designed to be self-retaining. Alternatively, the holding sleeve may also be used for screw retention.
Note: Retract the sleeve when inserting the first screw
through the aiming device.
Advance the screw until the head of the screw contacts the plate.
Warning: Intraoperative imaging should be used to verify screw position.
Precaution: The screws should be tightened only after all screws have been inserted.

D3. Insert remaining screws

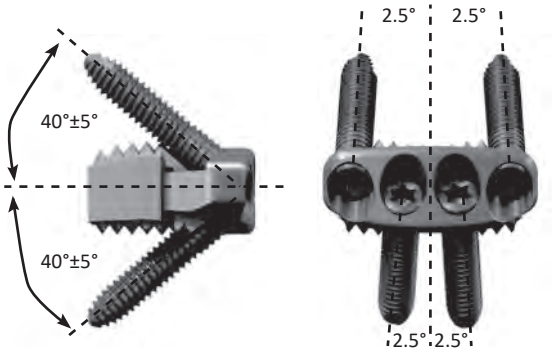
Repeat step D1 and D2 for the remaining screws.

D4. Tighten screws

To lock the screwhead in the plate, always use the torque limiter with the screwdriver to tighten each screw to the recommended 1.2 Nm torque.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Note: Screws placed using the surgical technique may not always be flush with the plate, but will be sufficiently locked when 1.2 Nm torque is achieved.

9. Screw fixation option E:
Angled instruments

For screws that are difficult to drill or insert because of interfering anatomy, the angled awl and angled screwdriver may be used.



E1. Awl first pilot hole

It is recommended that the first hole be created for a caudally pointing screws.

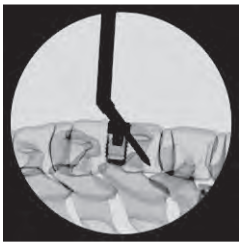
Determine the entry point and trajectory for the screw. The correct angulations for the screws are 40° in the caudal or cranial direction. The medial screws point 2.5° laterally and the lateral screws point 2.5° medially.

Note: Lateral screws should always point medially.

Insert the awl at the appropriate angle into the screw hole of the plate and tap with the mallet until the awl is seated.

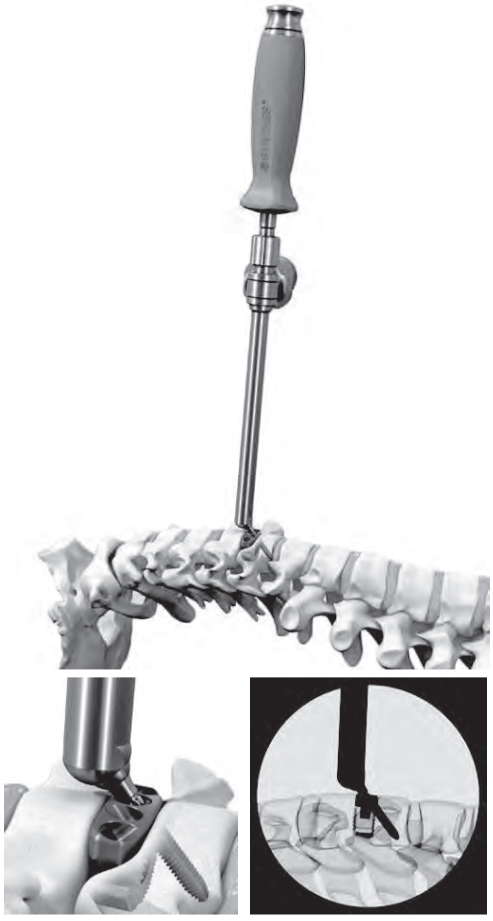
Remove the awl, maintaining alignment of the hole and plate.

Warning: Intraoperative imaging should be used to verify awl position.



E2. Insert first screw

Select the appropriate screw length according to the preoperative planning and intraoperative findings.
Load a screw onto the angled screwdriver. Advance the screw until the head of the screw contacts the plate.
Warning: Intraoperative imaging should be used to verify screw position.



E3. Insert remaining screws

Repeat steps E1 and E2 for the remaining screws.

E4. Tighten screws

To lock the screwhead in the plate, always use the torque limiter with the screwdriver to tighten each screw to the recommended 1.2 Nm torque.
Precaution: If the torque limiter is not used, breakage of the screwdriver may occur and could potentially harm the patient.
Note: Screws placed using the surgical technique may not always be flush with the plate, but will be sufficiently locked when 1.2 Nm torque is achieved.

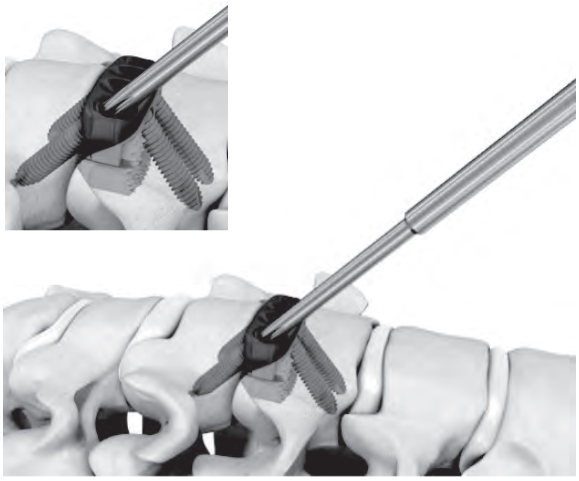
Implant removal

1. Remove screw

Attach the handle to the screwdriver shaft, then engage the assembled driver into the drive recess of the screw to be removed. Rotate the driver counterclockwise to first loosen the screw from the ZERO-X implant. Continue to rotate the driver counterclockwise to remove the loosened screw from the implant.

Note: If multiple screws need to be removed, it is recommended to first loosen all screws before removing any of the screws from the implant. Loosening all screws before removal of any screw helps ensure that the implant will be properly secured during removal.

Precaution: Screw loosening with the torque limiting handle may damage the torque limiting handle. Therefore always use the standard handle for screw loosening.



2. Extract implant

1. Remove screw

Once all screws are removed, the ZERO-X implant may be removed using the aiming device. Attach the aiming device to the implant by aligning the screw holes of the implant with the retention features on the aiming device and then expanding the aiming device.

After the implant is securely attached, carefully remove the implant.

Note: Use of distraction at the disc space is recommended to facilitate removal.

Anterior Cervical Locking Cage (Curved)

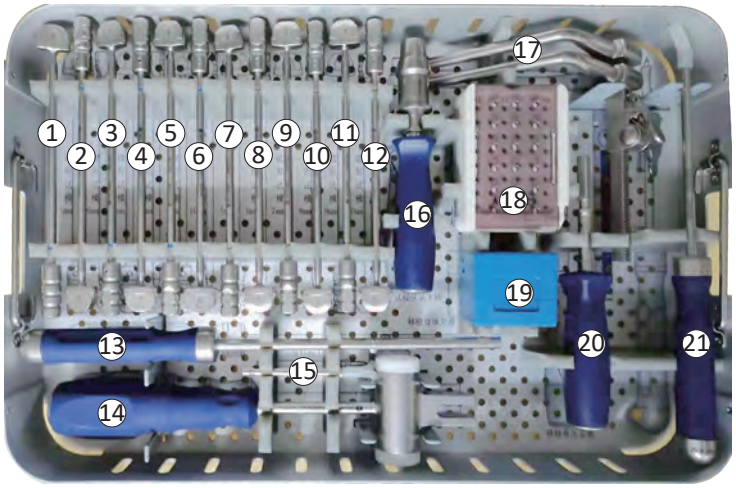
Product Code	Length(mm)	Breadth(mm)	Height(mm)
61622-005	/	/	5
61622-006			6
61622-007			7
61622-008			8
61622-009			9
61622-010			10
61622-011			11
61622-012			12

Anterior Cervical Locking Cage (Wedged)

Product Code	Length(mm)	Breadth(mm)	Height(mm)
61623-005	/	/	5
61623-006			6
61623-007			7
61623-008			8
61623-009			9
61623-010			10
61623-011			11
61623-012			12

INSTRUMENTS

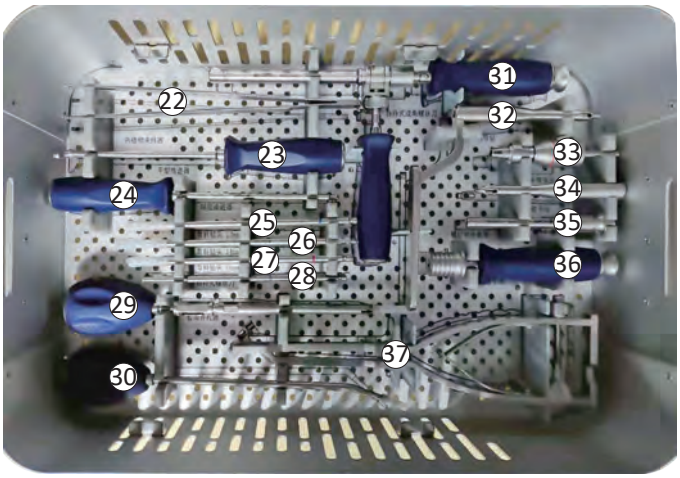
1509299900 Zero-X Instrument Set



TRAY 1

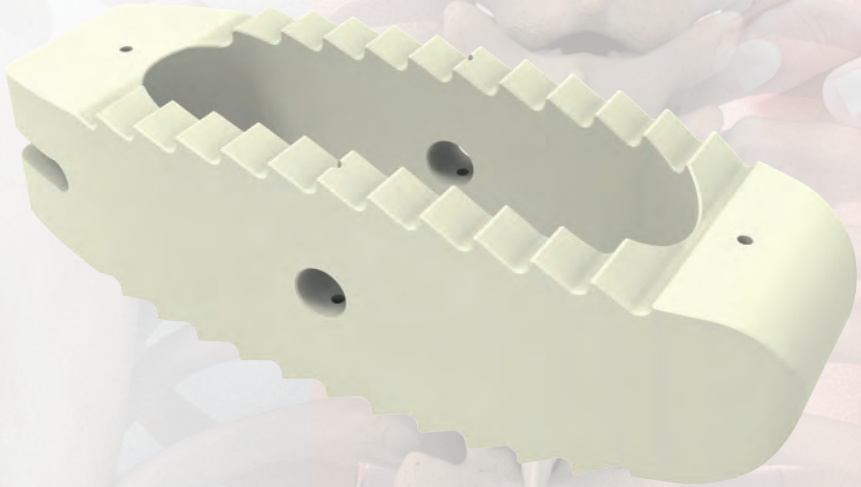
Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1509202600	Trial Spacers, Wedged	5mm	1
2	1509202700	Trial Spacers, Wedged	6mm	1
3	1509202800	Trial Spacers, Wedged	7mm	1
4	1509202900	Trial Spacers, Wedged	8mm	1
5	1509203000	Trial Spacers, Wedged	9mm	1
6	1509203100	Trial Spacers, Wedged	10mm	1
7	1509203200	Trial Spacers, Curved	5mm	1
8	1509203300	Trial Spacers, Curved	6mm	1
9	1509203400	Trial Spacers, Curved	7mm	1
10	1509203500	Trial Spacers, Curved	8mm	1
11	1509203600	Trial Spacers, Curved	9mm	1
12	1509203700	Trial Spacers, Curved	10mm	1
13	1509200300	Distracting Pin Screwdriver		1
14	1509200600	Slotted Mallet		1
15	1509200200	Distracting Pin		2
16	1509200500	Handle, With Quick Coupling, For Trial Spacers		1
17	1509200400	Distractor		1
18	1509202200	Screw Case		1
19	1509200800	Packing Block		1
20	1509200700	Cancellous Bone Implactor		1
21	1509200100	AWL		1

1509299900 Zero-X Instrument Set



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
22	1509201000	Implant Holder		1
23	1509201100	Impactor, Flat		1
24	1509201200	Impactor, Ball Tip		1
25	1509202300	Drill Bit	12mm	3
26	1509202400	Drill Bit	14mm	3
27	1509202500	Drill Bit	16mm	3
28	1509201500	Screwdriver Shaft, Self Retaining		3
29	1509201900	Awl With Sleeve		1
30	1509202000	Angle Awl		1
31	1509202100	Angled Screwdriver With Sleeve, Self Retaining		1
32	1509201700	Drill Gude With Handle		1
33	1509201400	Torque Limited Attachment		1
34	1509201800	Thread Drill Guide		1
35	1509201600	Hodling Sleeve, For Screwdriver Shaft		1
36	1509201300	Handle, With Quick Coupling		1
37	1509200900	Aming Device		1
38	1509200000	Instrument Case		1



O-Max™

Cervical Laminoplasty System

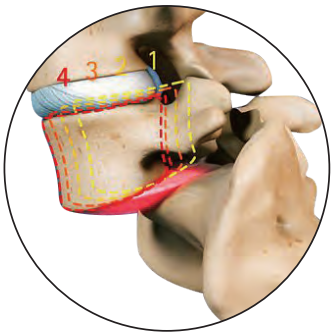
Advantage

- By utilizing an oblique lateral approach to the spine, OLIF Procedures enable placement of a large interbody graft on to the apophysis, the strongest part of a vertebral body.
- The graft provides anterior column support while avoiding risks and obstacles associated with traditional anterior, posterior, and direct lateral approaches.
- Preserve muscle, avoid nerves of the lumbar plexus.
- Avoid the iliac crest.
- Create larger vision space & bone graft space.

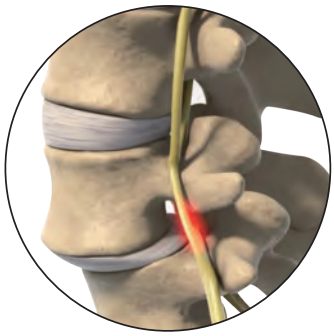
WASTONspine

INDICATION

Degenerative Disc Disease



Isthmic Spondylolisthesis



Degenerative Spondylolisthesis

SURGICAL TECHNIQUE

1. Patient Positioning

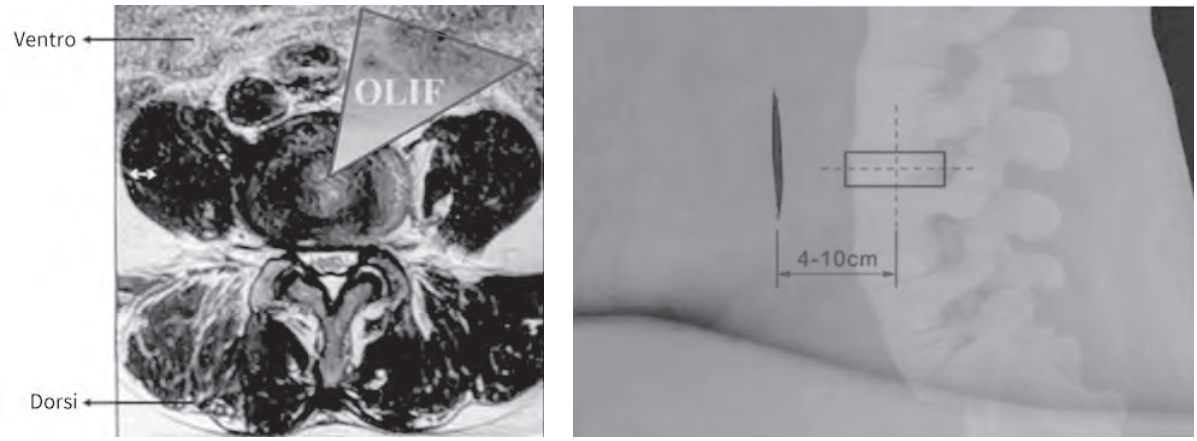
Place the patient in the lateral decubitus position . A bolster is recommended under the hips to help open the space between the 12th rib and the iliac crest. At the same time, it is recommended to flex the operating table, which also helps to open the space between the 12th rib and the iliac crest. Make sure that the spine does not lose alignment due to rotation . Secure the patient to the operating table.

Notice When positioning and immobilizing the patient, accidental compression should be avoided; if neuromonitoring is planned, the neurophysiologist or neuromonitoring technician should place all required electrodes before positioning the patient.

The inner and outer diameters of the vertebral body are measured preoperatively.

2. Approach and exposure

Mark the incision: Determine the correct surgical segment and incision by fluoroscopy. The skin incision should be 4-10 cm anterior to the midpoint of the target disc



Advantage 1： Natural channel)

Does not strip the muscle. It is a natural channel to avoid denervation and muscle damage, and bleeding problems. The amount of bleeding is very small. There is a potential physiological channel between the psoas major muscle and the aorta, about 0.8 cm. The skin is incised, and the gap can be reached directly through the minimally invasive channel. Slowly and bluntly. The psoas major muscle and the aorta are separated, and the intervertebral space can be very clearly exposed.

2. Save time, enter in 30 minutes with very little force and can get a good result.

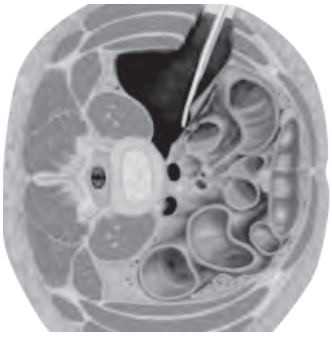
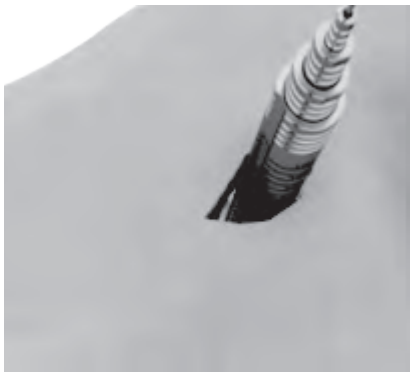
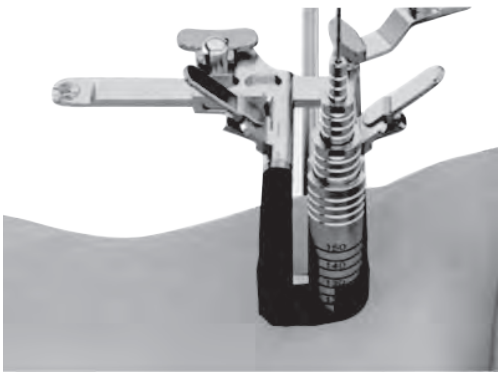
Advantage 2 ： injury problem

Traditional surgery requires stripping the back muscles and destroying the facet joints, spinous processes, spinous ligaments, posterior longitudinal ligaments and other structures 1. There is no need to enter the spinal canal, and there is no need to destroy the rear structure (no contact with the nerve, which avoids postoperative adhesion of the nerve in the future) 2. The incision is small, only 4-6CM incision is required

3. Retraction and exposure with Soft tissue channel tools

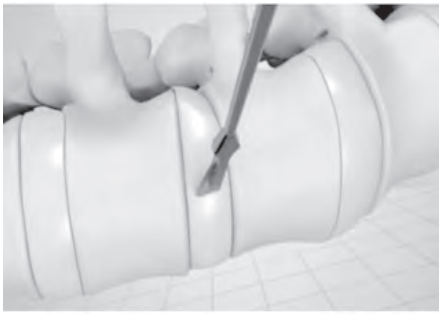
Cut the skin and subcutaneous tissue, cut the myofascia along the direction of the external oblique muscle, the internal oblique muscle, and the transverse abdominis respectively, and use vascular forceps to perform blunt dissection along the direction of the muscle fibers. After entering the retroperitoneal space, use the index finger to track back to the psoas muscle along the inside of the abdominal wall. Use the index finger dissects the retroperitoneal fat to protect the anterior structures

Place the dilation tube one by one from the smallest one under fluoroscopic guidance. After the diameter reaches 22 mm, adjust and fix the working channel under fluoroscopic guidance, place the fixation arm and light source, and expose the intervertebral space under direct vision

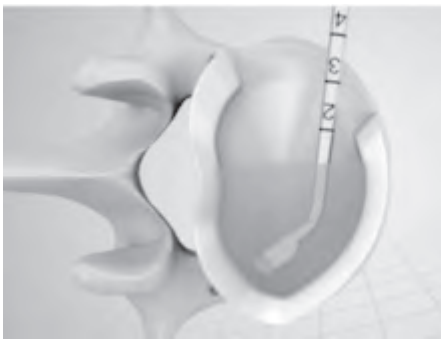

4. Discectomy

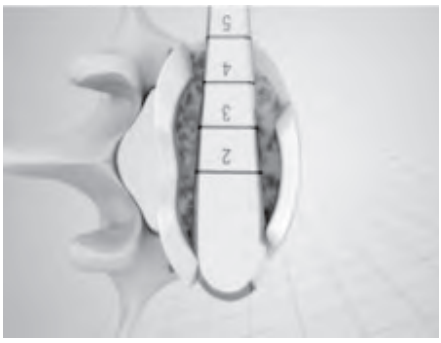
Use an osteotome to cut a small square window on the annulus fibrosus, then use a nucleus forceps to remove the nucleus and the contralateral edge


5. Removal of nucleus pulposus

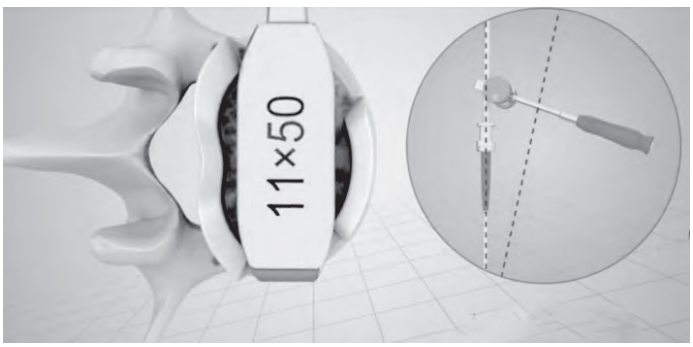
Note: If the disc is severely collapsed, a spinal distractor can be used to open it and restore normal intervertebral space height, restore lordosis, and widen the intervertebral foramen. To avoid damage to vital structures, it is recommended to retain several millimeters of the annulus fibrosus anteriorly and posteriorly, and the anterior and posterior longitudinal ligaments must remain intact. (Avoid excessive distraction to avoid damage to the soft tissue. Rotate the distractor clockwise to open the segment. When removing, it should be rotated counterclockwise. The incorrect angle when rotating the distractor may cause bony structure damage.)



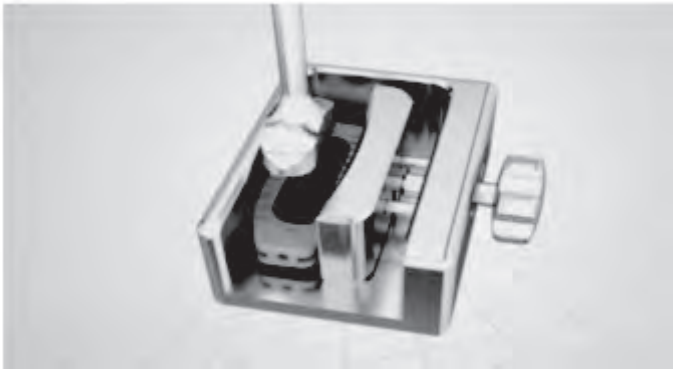


6. Use Trial spacer

Use the vertical technique to move the trial spacer from the oblique path to the positive side path.



Fill in artificial bone or use a osteotome and scraper to remove an appropriate amount of cancellous bone to fill the Cage.

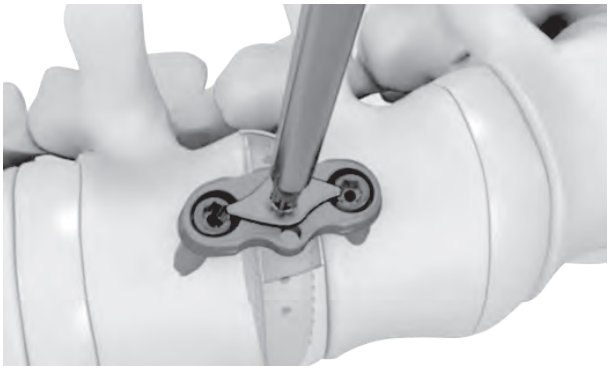


Advantage 3: The fusion rate is higher
In the past, the cages including PLIF and TLIF, were very small. With the old cages, the vertebral endplate area only can be processed 39% which is too small and it is easy to sink. The processing area of the OLIF endplate can reach 60%, the coverage is more than 50%, and the fusion rate can reach 98%. The key to a good fusion device is to achieve the high fusion rate, and the standard of good surgery is to achieve long-term bone grafting.

7. Insert the implant
Snap the jaws of the holder into the notches of the cage and tighten the quick-lock nut. Insert the cage into the intervertebral space, making sure the cage is oriented correctly. Remove the holder and use the impactor to adjust the cage position. （During the operation of the cage implantation, pay attention to enter it obliquely first, and then rotate it into the intervertebral space vertically.)

8. Insert locking plate

Use the plate holder and the drill guide to insert the fixation plate and 2 angled screws for fixation. Finally, the retractor system is carefully removed, the adjacent blood vessels, nerves and other soft tissues are checked again. The operation area is flushed with saline, and the incision is closed layer by layer.



O-Max OLIF Lumbar interbody fusion cage

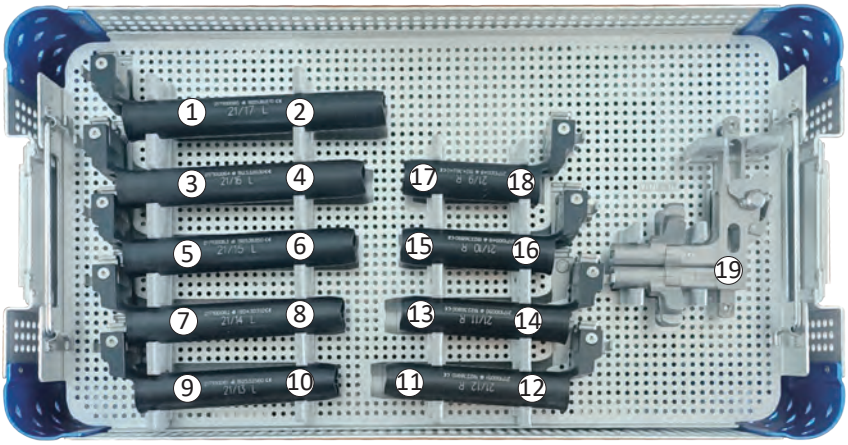
Product Code	Length(mm)	Height(mm)	Lordosis(°)
61624-040	40	9	0°
61624-045	45		
61624-050	50		
61624-055	55		
61624-060	60		
61624-140	40	11	
61624-145	45		
61624-150	50		
61624-155	55		
61624-160	60		
61624-240	40	13	
61624-245	45		
61624-250	50		
61624-255	55		
61624-260	60		
61624-340	40	15	
61624-345	45		
61624-350	50		
61624-355	55		
61624-360	60		
61624-440	40	17	
61624-445	45		
61624-450	50		
61624-455	55		
61624-460	60		

O-Max OLIF Lumbar interbody fusion cage

Product Code	Length(mm)	Height(mm)	Lordosis(°)
61625-040	40	9	6°
61625-045	45		
61625-050	50		
61625-055	55		
61625-060	60		
61625-140	40	11	
61625-145	45		
61625-150	50		
61625-155	55		
61625-160	60		
61625-240	40	13	
61625-245	45		
61625-250	50		
61625-255	55		
61625-260	60		
61625-340	40	15	
61625-345	45		
61625-350	50		
61625-355	55		
61625-360	60		
61625-440	40	17	
61625-445	45		
61625-450	50		
61625-455	55		
61625-460	60		

INSTRUMENTS

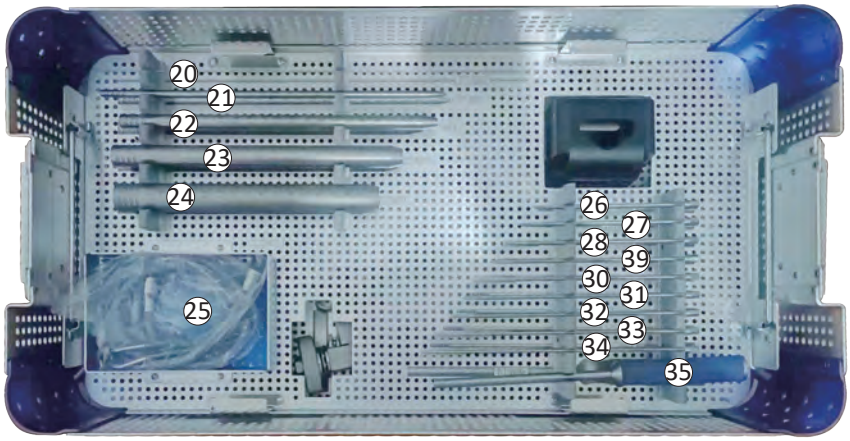
1509399900 O-Max OLIF Lumbar Interbody Fusion Cage Instrument Set



TRAY 1

Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1509300600	Minimally invasive retractor	21/17, L	1
2	1509300700	Minimally invasive retractor	21/17, R	1
3	1509300800	Minimally invasive retractor	21/16, L	1
4	1509300900	Minimally invasive retractor	21/16, R	1
5	1509301000	Minimally invasive retractor	21/15, L	1
6	1509301100	Minimally invasive retractor	21/15, R	1
7	1509301200	Minimally invasive retractor	21/14, L	1
8	1509301300	Minimally invasive retractor	21/14, R	1
9	1509301400	Minimally invasive retractor	21/13, L	1
10	1509301500	Minimally invasive retractor	21/13, R	1
11	1509301600	Minimally invasive retractor	21/12, L	1
12	1509301700	Minimally invasive retractor	21/12, R	1
13	1509301800	Minimally invasive retractor	21/11, L	1
14	1509301900	Minimally invasive retractor	21/11, R	1
15	1509302000	Minimally invasive retractor	21/10, L	2
16	1509302100	Minimally invasive retractor	21/10, R	1
17	1509302200	Minimally invasive retractor	21/9, L	1
18	1509302300	Minimally invasive retractor	21/9, R	1
19	1509303800	Adjustable retractor		1

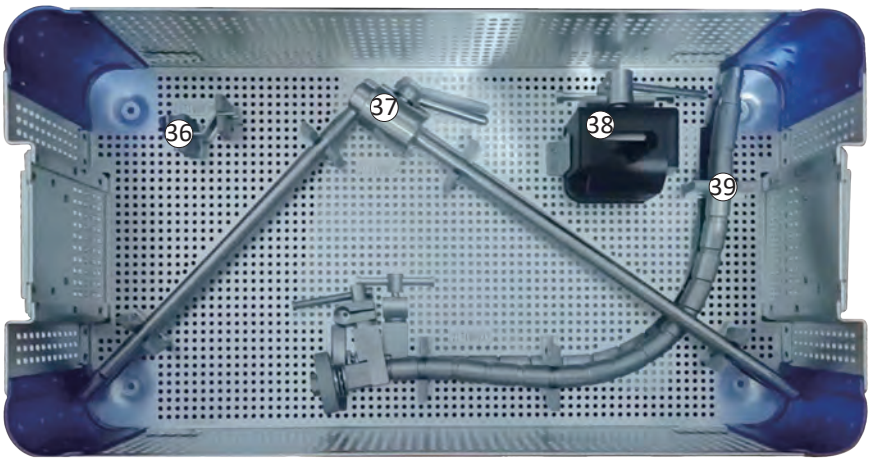
1509399900 O-Max OLIF Lumbar Interbody Fusion Cage Instrument Set



TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
20	1509300100	Positioning pin		1
21	1509303400	Dilation tube		1
22	1509303500	Dilation tube		1
23	1509303600	Dilation tube		1
24	1509303700	Dilation tube		1
25	1509300500	Protecting sleeve		1
26	1509302400	Traction needle		2
27	1509302500	Traction needle		2
28	1509302600	Traction needle		2
29	1509302700	Traction needle		2
30	1509302800	Traction needle		2
31	1509302900	Traction needle		2
32	1509303000	Traction needle		2
33	1509303100	Traction needle		2
34	1509303200	Traction needle		2
35	1509303300	Screwdriver		1

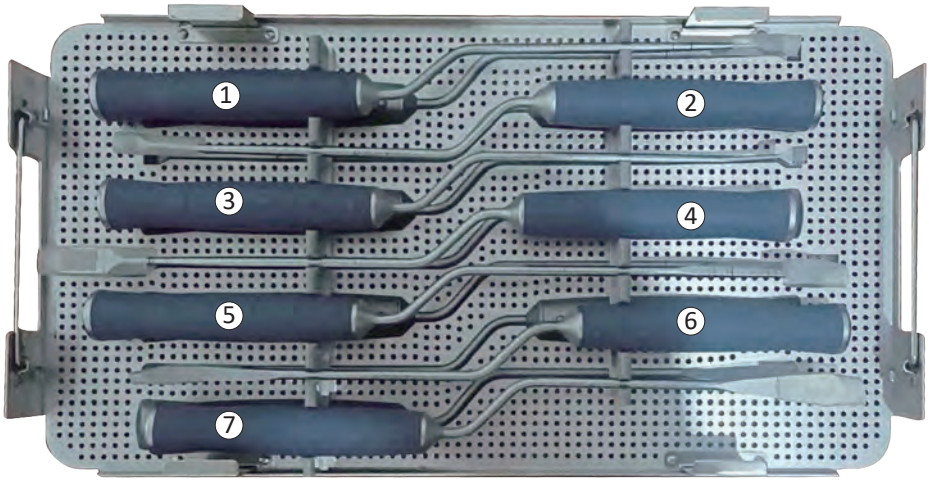
1509399900 O-Max OLIF Lumbar Interbody Fusion Cage Instrument Set



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
36	1509300200	Clamp		1
37	1509300400	Adjustable fixed bracket		1
38	1509303900	Connector		1
39	1509300300	Adjustable fixed bracket		1
40	1509300000	Instrument case		1

1509499900 O-Max OLIF Lumbar Interbody Fusion Cage Auxiliary Instrument Set



TRAY 1

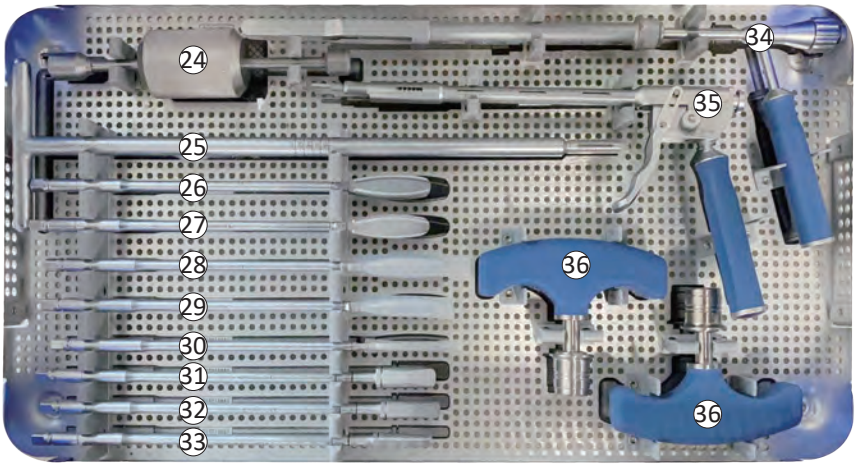
Item NO.	Product Code	Instrument Name	Specification	Quantity
1	1509402900	Bone file		1
2	1509403000	Bone file		1
3	1509403100	Bone file		1
4	1509403200	Bone file		1
5	1509403300	Bone file		1
6	1509403400	Periosteal elevator		1
7	1509403500	Periosteal elevator		1

1509499900 O-Max OLIF Lumbar Interbody Fusion Cage Auxiliary Instrument Set

TRAY 2

Item NO.	Product Code	Instrument Name	Specification	Quantity
8	1509401100	Trial spacer		1
9	1509401200	Trial spacer		1
10	1509401500	Trial spacer		1
11	1509401600	Trial spacer		1
12	1509401900	Trial spacer		1
13	1509402000	Trial spacer		1
14	1509402300	Trial spacer		1
15	1509402400	Trial spacer		1
16	1509401300	Trial spacer		1
17	1509401400	Trial spacer		1
18	1509401700	Trial spacer		1
19	1509401800	Trial spacer		1
20	1509402100	Trial spacer		1
21	1509402200	Trial spacer		1
22	1509402500	Trial spacer		1
23	1509402600	Trial spacer		1

1509499900 O-Max OLIF Lumbar Interbody Fusion Cage Auxiliary Instrument Set



TRAY 3

Item NO.	Product Code	Instrument Name	Specification	Quantity
24	1509403600	Hammer		1
25	1509400200	Trephine		1
26	1509401000	Osteotome		1
27	1509400900	Osteotome		1
28	1509400800	Osteotome		1
29	1509400700	Osteotome		1
30	1509400600	Osteotome		1
31	1509400500	Distractor		1
32	1509400400	Distractor		1
33	1509400300	Distractor		1
34	1509402800	Implant holder		1
35	1509402700	Extractor		1
36	1509400100	Quick coupling handle		2
37	1509400000	Instrument case		1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