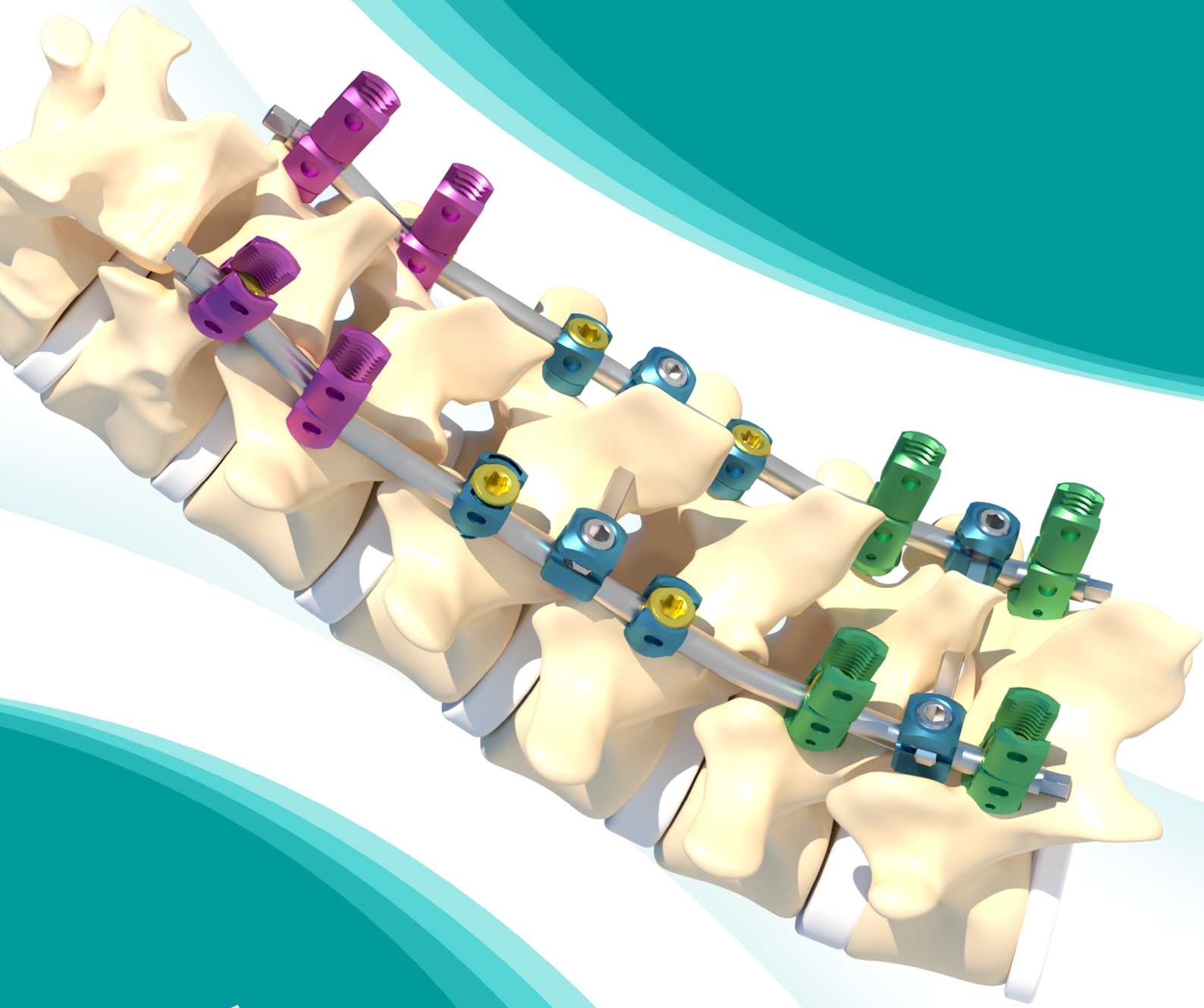
Usmart 5.5mm
Spinal Screw-Rod System
Surgical Technique



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专注骨科事业

Why Choose FULE ?
OUR ADVANTAGE

- TOP Two Spine Implants Manufacturer In China, providing Spine implants and instruments with good quality and service.
- We are Focusing On Orthopaedics more than 27 years, our products has been widely used by thousands of large and medium-sized hospitals.
- We have Excellent Distribution Channel and perfect after-sales service in Chinese main cities.
- We Offer OEM&ODM Service, we have our own professional designers to meet any of your requirements.

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EC REP CE 2460

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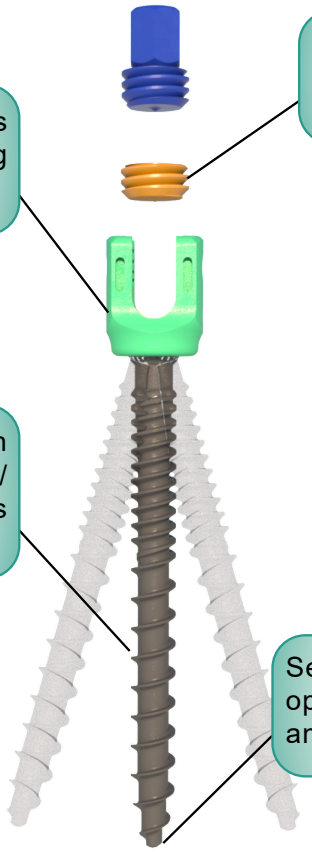
CONCEPT

Product-Specific Advantages

Comprehensive screw offering, 4.0mm-7.5mm.

Strong headbody easily manages loads in excess of the most demanding kyphotic and scoliotic curves.



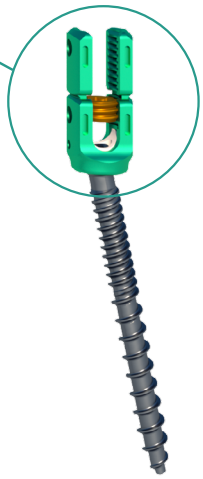
Multiple options for curve correction and derotation combined with cortical/ canncelous thread form offers confidence in construct integrity.

Self-tapping,due lead, optimized threadform for fast delivery and superior pull out resistance.

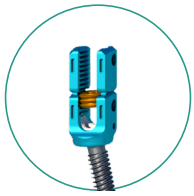
CoCrMo rods in 5.5mm provide confidence in correction stabilization.

Product-Specific Advantages

Titanium screw heads are color-coded by screw diameter.

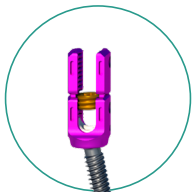


Color-Coding Reference
NOTE:Color-coding available in titanium only.

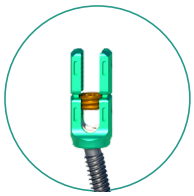


- 4.0mm

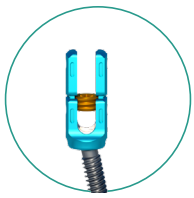
- 4.5mm



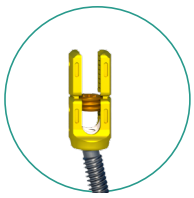
- 5.0mm



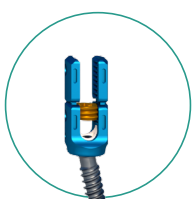
- 5.5mm



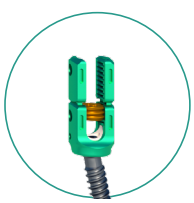
- 6.0mm



- 6.5mm



- 7.0mm



- 7.5mm

Indications for Use

【Attention and Suggestive Description】

Please read the instruction before use carefully; Doctors should make clear the detailed notes to Patients in preoperative; If found have scratched the surface, broken, bent, crack phenomenon, the product is no longer available when delivered product;

Implants and instruments provided by our company are non sterilization, but the surgical instruments must be sterilized by high-pressure steam sterilization process before using.

【Indications】

Various types of spinal fractures, including spinal burst fractures, compression fractures and fracture dislocation; short segment kyphosis orthopedic fixation; single segmental spinal instability or degenerative diseases.

【Contraindications】

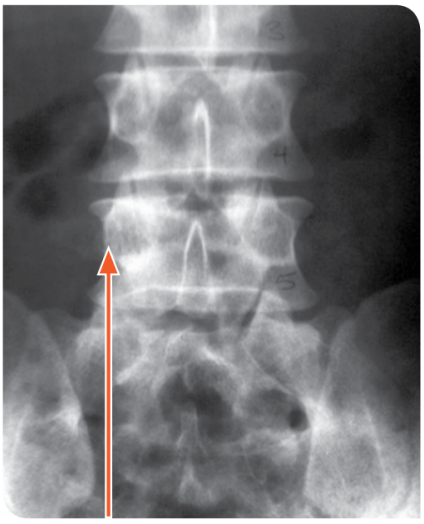
Abnormal bone structure; nerve root canal anatomical abnormalities; serious neurological disorders; obesity; severe osteoporosis; metal allergy.

Surgical Technique

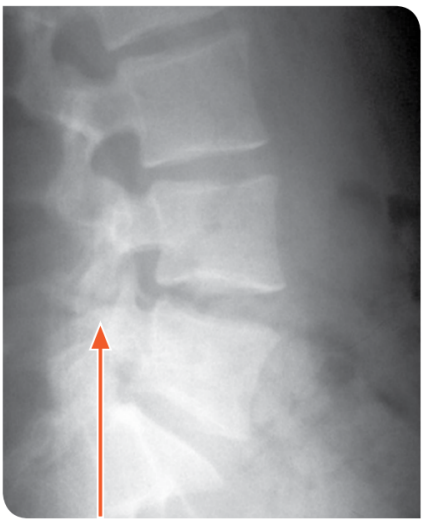
【Step 1】 INTRA-OP IMAGING

- Prior to preparing the pedicles for screw insertion, determine the Sagittal and Coronal orientation of the pedicles for the vertebrae to be instrumented.

- Identify the appropriate anatomical landmarks to create the entry points and pilot holes for screw insertion (Figures 1a and 1b).



Figures 1a



Figures 1b

Surgical Technique

【Step 2】 PEDICLE PREPARATION

- Create a pilot hole in the pedicle at the junction of the transverse process and the superior articular process using the Awl (113-470)(Figures 2a）.

- Next, use a pedicle probe (113-022) to complete the cannulation ofthe pedicle (Figures 2b).

Following preparation of the pedicle, a Feeler Probe (101-022) can be used to measure the depth.

Figures 2a

Figures 2b

Surgical Technique

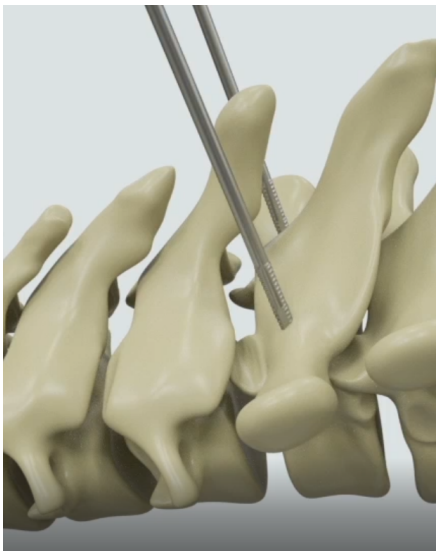
【Step 2】 PEDICLE PREPARATION

- Usmart Polyaxial Screws have self-tapping cutting flutes to obviate the need for tapping should the surgeon so choose. Therefore, pedicle screws may be inserted immediately following the preparation and verification of pedicle wall integrity.

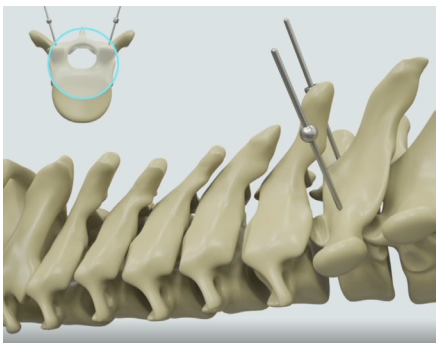
However, in cases of dense, sclerotic, or osteoporotic bone, tapping is recommended.

- Select the appropriate diameter tap (113-035), insert it into the pedicle and stop at the desire depth(Figures 2c).

- Following final preparation of the pedicle, pin (102-141/142) can be used to follow the tapped threads through the cancellous bone to confirm the position(Figures 2d).



Figures 2c



Figures 2d

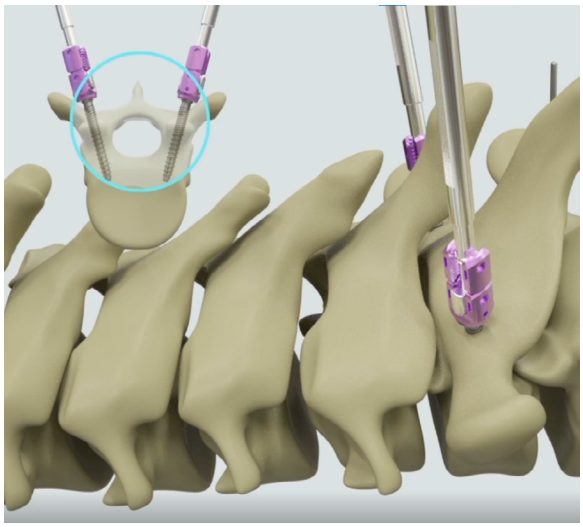
Surgical Technique

【Step 3】 SCREWDRIVER AND SCREW ASSEMBLY

- Assemble the Ratchet handle and the appropriate length pedicle screw onto the Locking Polyaxial Screwdriver.

Connect the Ratchet Handle(113-133) onto the proximal end of the screwdriver and ensure the 1/4” square drive of the shaft is fully engaged with the handle.

- Once the screwdriver and screw assembly is complete, insert the screw into the pedicle(Figures 3a). Set the Axial Ratcheting Handle in the forward position and ratchet clockwise until the screw has reached the desired depth.



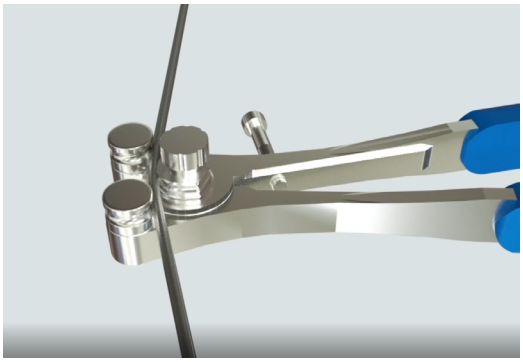
Figures 3a

【Step 4】 ROD MEASUREMENT & CONTOURING

- With the screws in place, the Rod Template(101-132) can be used to determine the appropriate rod contour and length(Figures 4a).

- If required, a Rod Cutter and Rod Bender(113-251) may be used to achieve the desired rod length and contour. (Figures 4b).

Figures 4a



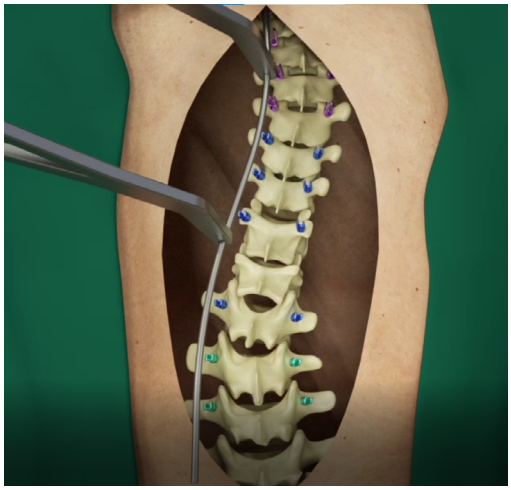
Figures 4b

Surgical Technique

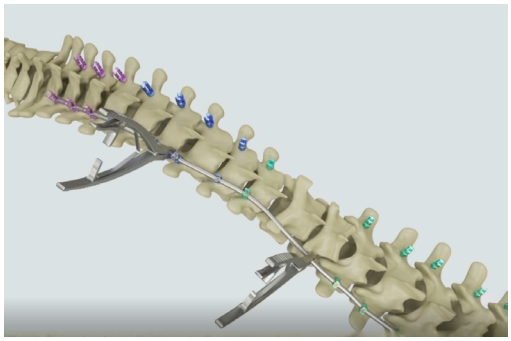
【Step 5】 ROD INSERTION

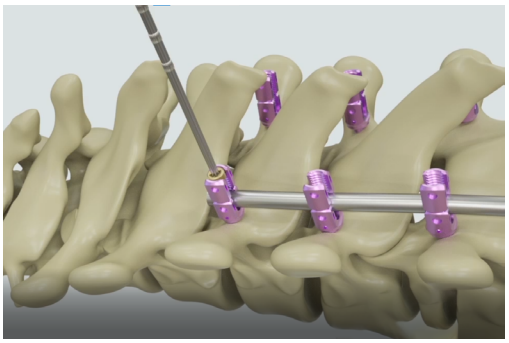
- Place the rod using the rod holder(113-210)(Figures 5a).

- Use Rod Gripper(101-123), Rod Pusher(113-260) and Screw holder (113-270) to reset vertebral, after adjustment, tighten all plugs(Figures 5b and 5c).



Figures 5a





Figures 5b and 5c

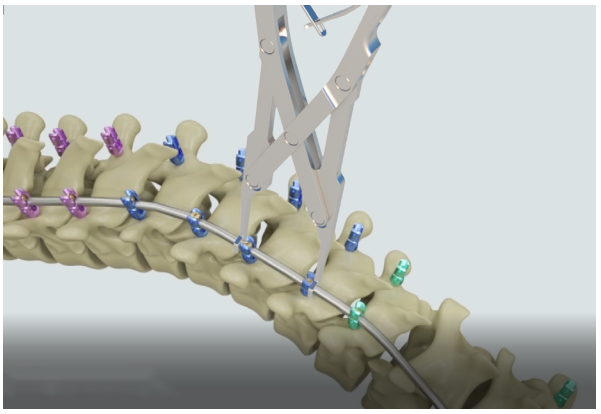
Surgical Technique

【Step 6】 PARALLEL COMPRESSION

- Compression can be performed at any instrumented level to restore sagittal alignment. To begin, tighten the set screw on one side of the motion segment and leave the set screw loose in the adjacent segment to be compressed.

- Place the Parallel Compressor (113-240) outside of the screw heads and over the rod. Squeeze the handles until adequate compression is attained(Figures 6a).

- Finally, use the Final locking screwdriver(113-500) to tighten the set screw and maintain compression



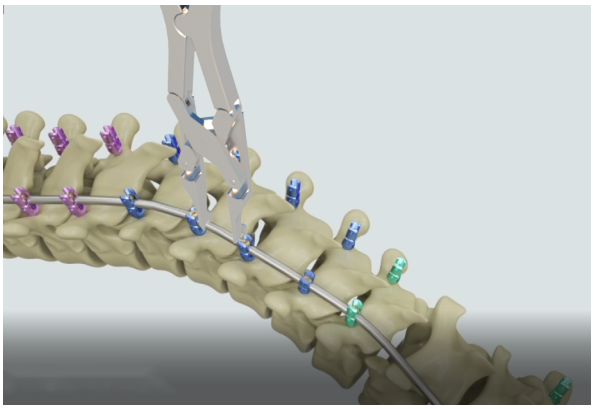
Figures 6a

Surgical Technique

【Step 7】 PARALLEL DISTRACTION

- To begin, tighten the set screw on one side of the motion segment and leave the adjacent set screw loose. Place the tips of the Parallel Distractor(113-230) over the rod and between the implants, and then squeeze the handles to distract.

When adequate distraction is attained, use the Final locking screwdriver(113-500) to tighten the set screw and maintain distraction (Figures 7a).



Figures 7a

Surgical Technique

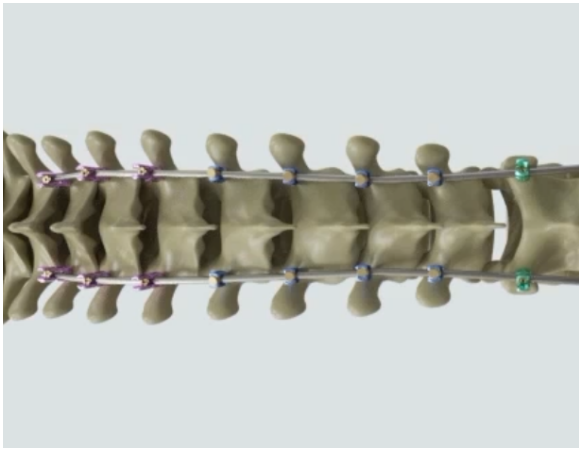
【Step 8】 FINAL TIGHTENING

- Final tightening of the construct should be performed when all screws and rods are in their final position(Figures 8a).

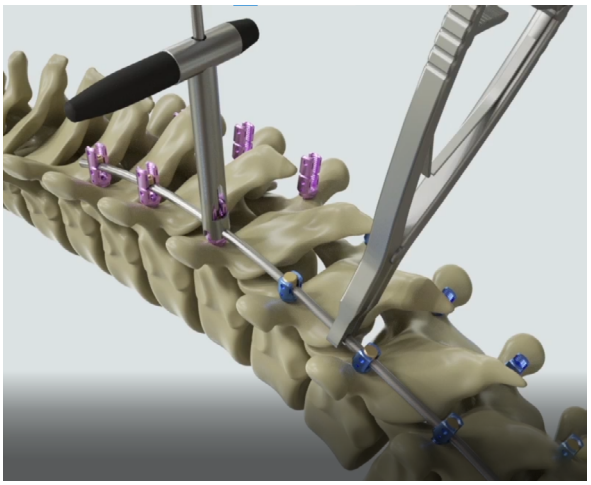
- Connect the Counter Torque Handle(113-490) with the Final locking screwdriver(113-500) to tighten the plugs.

- Alternatively,Insert the Limited Torque Handle(113-421) assembly through the cannula of the Anti-Torque and engage the tip of the torque driver into the set screw(Figures 8b).

- Slide the Anti-Torque down until the instrument is fully seated over the rod and implant. Turn the T-Handle clockwise to tighten. Final tightening is achieved when the T-Handle audibly clicks .



Figures 8a



Figures 8b

Surgical Technique

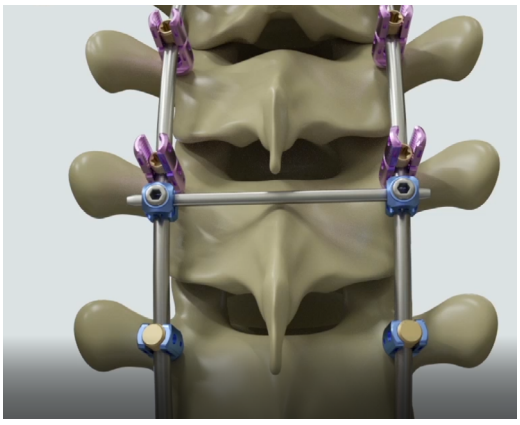
【Step 9】 TRANSVERSE CONNECT

- TheUsmart Variable Transverse Connector can be used to increase the torsional stability of a construct. Transverse Connector should be placed at each end of longer constructs to increase construct rigidity.

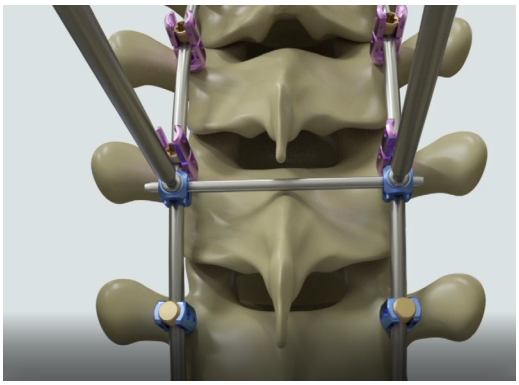
- Select the appropriate connector, use the connector holder(113-220) to engage a lateral set screw.

  Once precise contact has been achieved between the connector and the rods, the holder(113-220) can be used to provisionally tighten the connector to the rods(Figures 9a).

- To final tighten the transverse connector, use the screwdriver(113-081) to set the screws(Figures 9b).



Figures 9a



Figures 9b

Implants Specification

【Usmart Monoaxial Pedicle Screw】

Screw Diameter(mm)	Screw Length(mm)							
	25	30	35	40	45	50	55	60
4.0	*	*	*	*	*	*		
4.5	*	*	*	*	*	*		
5.0	*	*	*	*	*	*		
5.5	*	*	*	*	*	*		
6.0		*	*	*	*	*		
6.5		*	*	*	*	*	*	
7.0		*	*	*	*	*	*	*
7.5		*	*	*	*	*	*	*

【Usmart Monoaxial Reduction Pedicle Screw】

Screw Diameter(mm)	Screw Length(mm)							
	25	30	35	40	45	50	55	60
4.0	*	*	*	*	*	*		
4.5	*	*	*	*	*	*		
5.0	*	*	*	*	*	*		
5.5	*	*	*	*	*	*	*	
6.0		*	*	*	*	*		
6.5		*	*	*	*	*	*	
7.0		*	*	*	*	*	*	*
7.5		*	*	*	*	*	*	*

【Usmart Polyaxial Pedicle Screw】

Screw Diameter(mm)	Screw Length(mm)							
	25	30	35	40	45	50	55	60
4.0	*	*	*	*	*			
4.5	*	*	*	*	*			
5.0	*	*	*	*	*	*		
5.5	*	*	*	*	*	*	*	
6.0	*	*	*	*	*	*	*	
6.5	*	*	*	*	*	*	*	*
7.0		*	*	*	*	*	*	*
7.5		*	*	*	*	*	*	*

【Usmart Polyaxial Reduction Pedicle Screw】

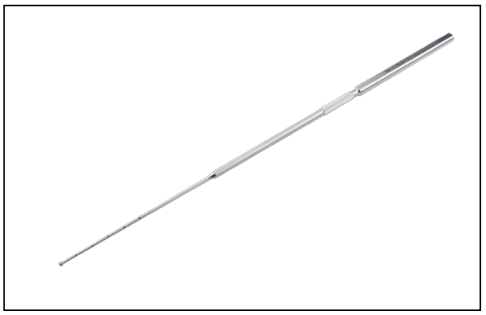
Screw Diameter(mm)	Screw Length(mm)							
	25	30	35	40	45	50	55	60
4.0	*	*	*	*	*			
4.5	*	*	*	*	*			
5.0		*	*	*	*	*		
5.5		*	*	*	*	*	*	
6.0		*	*	*	*	*	*	
6.5		*	*	*	*	*	*	*
7.0		*	*	*	*	*	*	*
7.5		*	*	*	*	*	*	*

Surgical Instruments

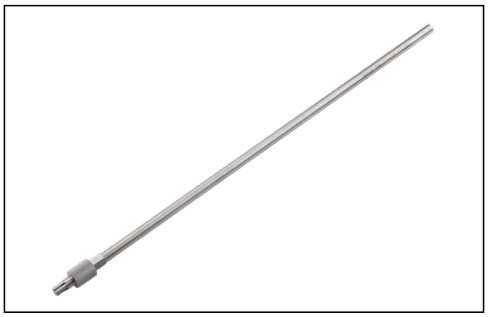
● 113-101
Monoaxial Pedicle Screwdriver

● 113-182
Break-off for Reduction Screw

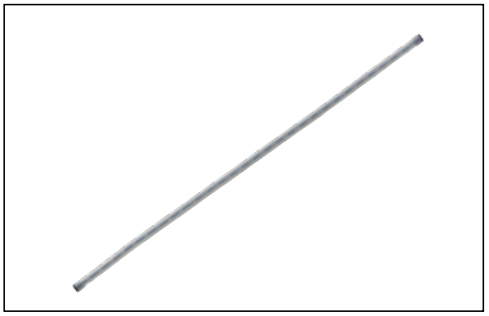
● 113-035/480/481
Tap (φ4.0)/(φ5.0)/(φ6.0)



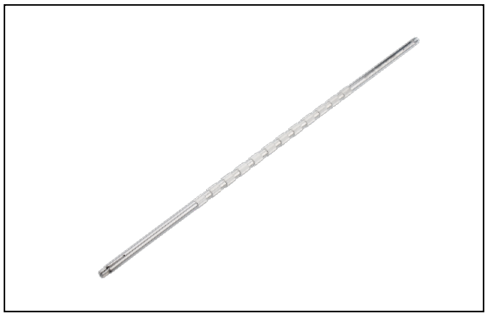
● 101-022
Feeler Probe



● 113-500
Final Locking Screwdriver



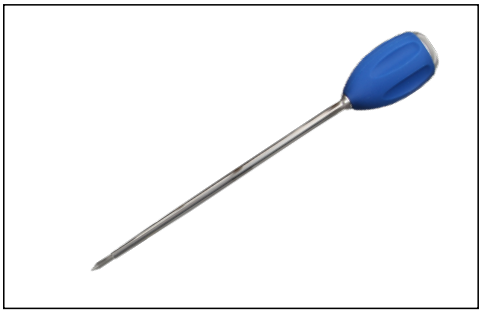
● 101-132
Rod Template (300 mm)



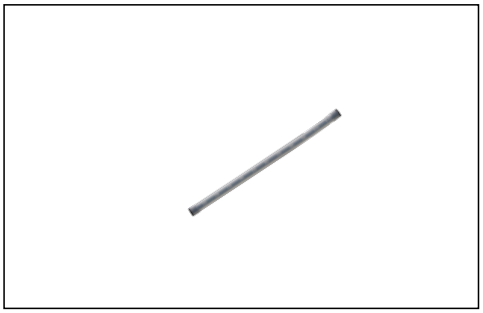
● 113-520
Nut Holder

● 113-111
Polyaxial Pedicle Screwdriver

Surgical Instruments

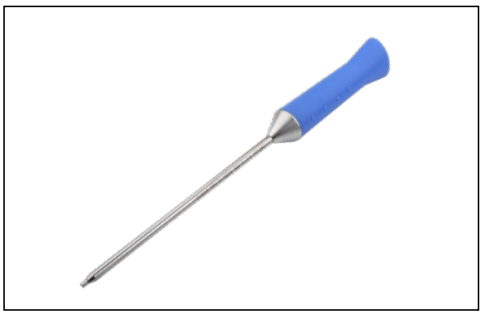


● 113-470
Awl



● 101-130
Rod Template (120 mm)

● 113-022
Lumbar Probe



● 113-081
Screwdriver for X Connector (Hex 3.5)

● 113-461
Straight Handle

● 102-130
Rod Gripper for Connecting Rod (Hex)

● 102-140
Pin & Pin Holder

● 113-260
Rod Pusher (C-type)

Surgical Instruments

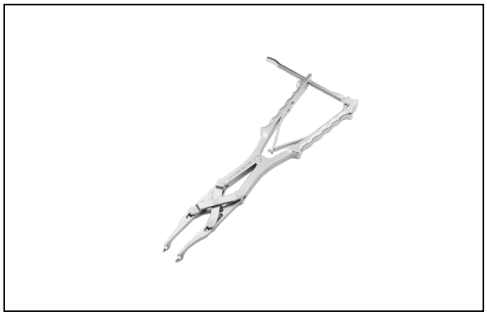
● 113-510
Locker for Pedicle Screwdriver

● 113-442
Limited Torque Handle (12 N.m)

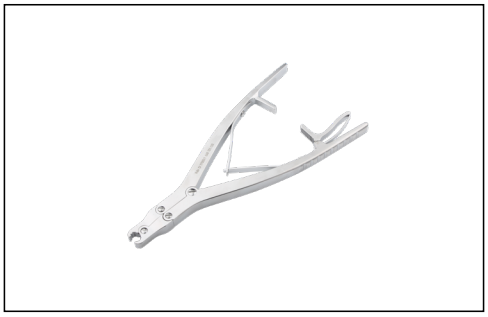
● 113-460
T Handle

● 113-490
Counter Torque

● 113-133
Ratchet Handle



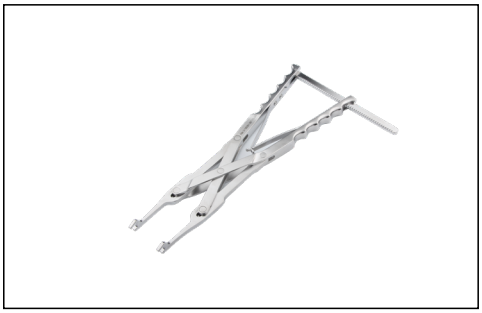
● 113-230
Parallel Distractor



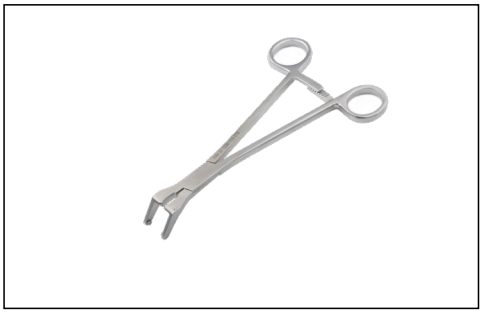
● 101-123
Rod Gripper

● 113-251
Rod Bender

Surgical Instruments



● 113-240
Parallel Compressor



● 113-270
Rod Pusher (Screw-holding type)

● 113-220
Holder for X Connector

● 113-210
Rod Holder