

DEFORMITY CORRECTION SPINAL SYSTEM

THORACO-LUMBAR
FIXATION



Plus



SURGICAL TECHNIQUE

SPINEVISION

INNOVATION THAT MATTERS

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REFERENCES

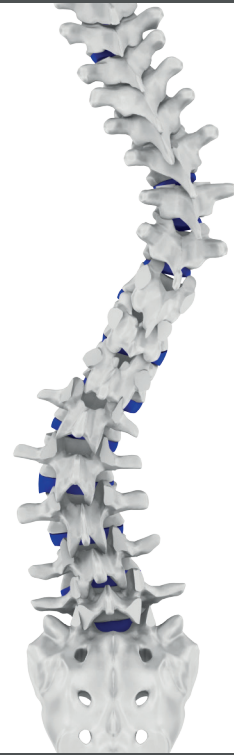
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PATIENT PREPARATION

The patient is placed on the operating room table using the standard position indicated for scoliosis reduction.



X-ray shall be used all along the procedure: to confirm identification of the levels to be instrumented, the good positioning of the implants, the proper balance of the whole assembly and the correction obtained.



II

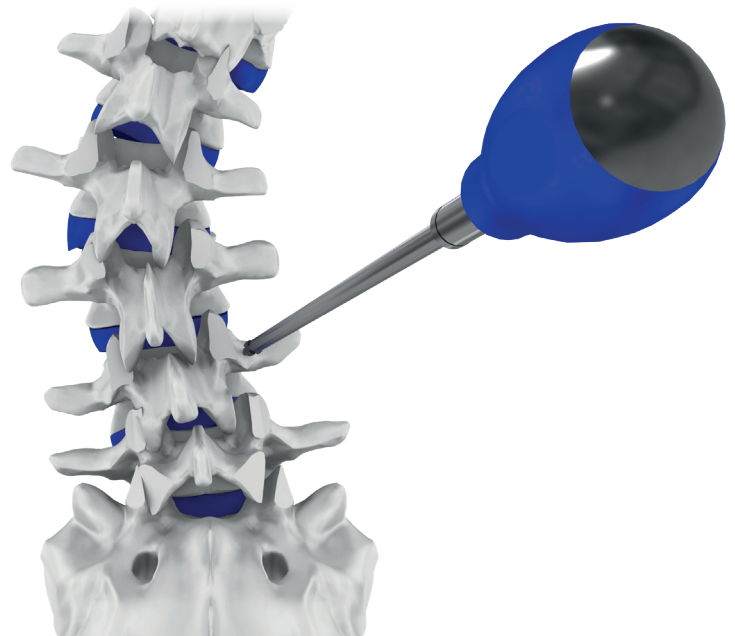
PEDICLE PREPARATION

Square Awl
U1-A121N1



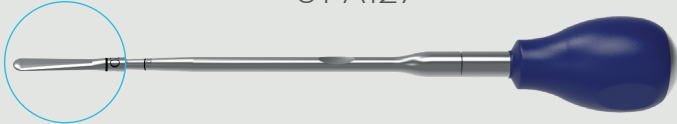
Perform the midline incision over the levels on which the screws or hooks must be inserted.

Once the different structures (facets, pedicles and processes) have been exposed, locate the entry point for screws on the pedicle and perforate the cortical bone using the **square awl** [U1-A121N1](#).



Lumbar Spatula

U1-A127



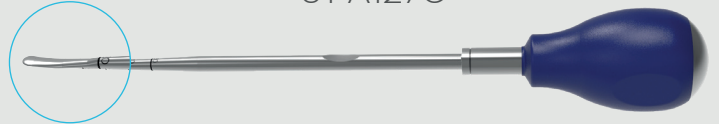
Lenke Probe

U1-A128



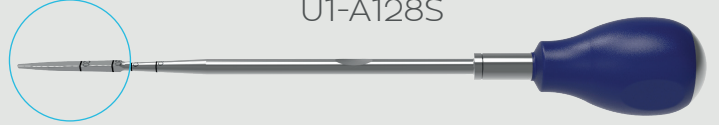
Curved Lumbar Spatula

U1-A127C



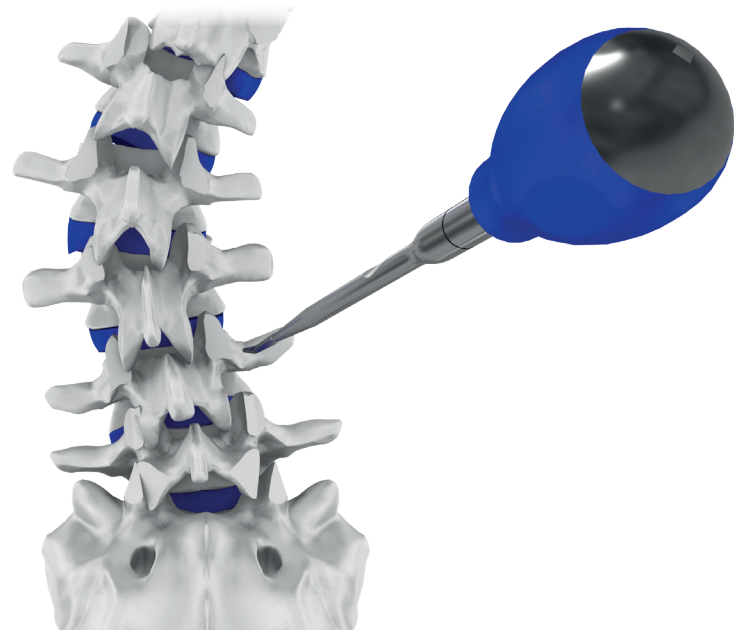
Straight Lenke Probe

U1-A128S



To create a pathway for screws in the pedicle, use the different pedicle probes available depending on surgeon's practice: **lumbar spatula** [U1-A127](#), **lenke probe** [U1-A128](#), **curved lumbar spatula** [U1-A127C](#) or **the straight lenke probe** [U1-A128S](#).

The appropriate length and depth for each vertebra are estimated by the surgeon.



Pedicle Probe with ball tip

U1-A124N1



The integrity of the intrapedicular cancellous bone can be checked with the **pedicle probe with ball tip** [U1-A124N1](#) by letting it slide on the pilot hole's wall.

The length of the screw to be inserted can be determined by putting the tip of the pedicle probe at the bottom of the hole and then marking the length of the inserted intrapedicular part with a finger at the pedicle's surface.



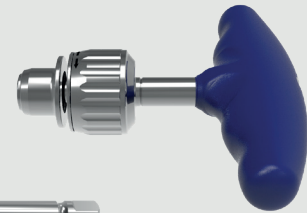


TAPPING

Cannulated Ratcheting Cylindrical Handle
SD-A411LSH



Cannulated Ratcheting T-Handle
SD-A411TSH



Sharp Taps
U1-A13XS



				
Ø 4,5 mm	Ø 5,5 mm	Ø 6,5 mm	Ø 7,5 mm	Ø 8,5 mm
U1-A134S	U1-A135S	U1-A136S	U1-A137S	U1-A138S

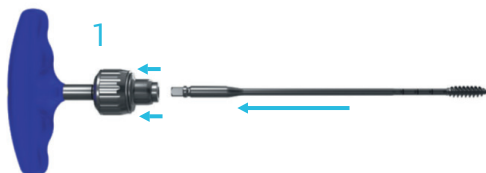
U1-MXXXT : Multiaxial screw
U1-SXXXT : Monoaxial screw

X = Diameter
XX = Length

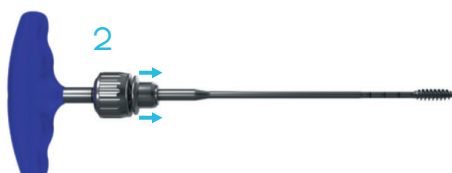
! WARNING !

The PLUS screws are color coded according to their diameters. It is mandatory to use the tap corresponding to the screw diameter.

- 1 To connect a **sharp tap U1-A13XS** to the **cannulated ratcheting cylindrical handle SD-A411LSH** or **T-handle SD-A411TSH**, pull the ring of the handle towards the silicon part.



- 2 While maintaining this position, insert the square tip of the sharp tap into the handle and release the ring to secure the connection between the two instruments.



Always double check the connection of the two pieces before giving it to the surgeon.



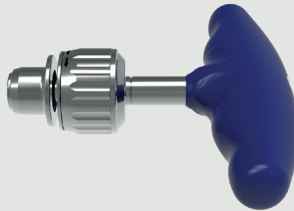
IV

MULTIAXIAL SCREW INSERTION

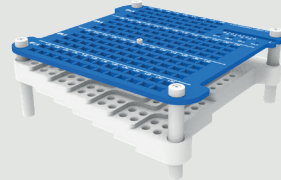
Universal Pedicle Screwdriver
U1-A237



Cannulated Ratcheting Cylindrical Handle
SD-A411LSH



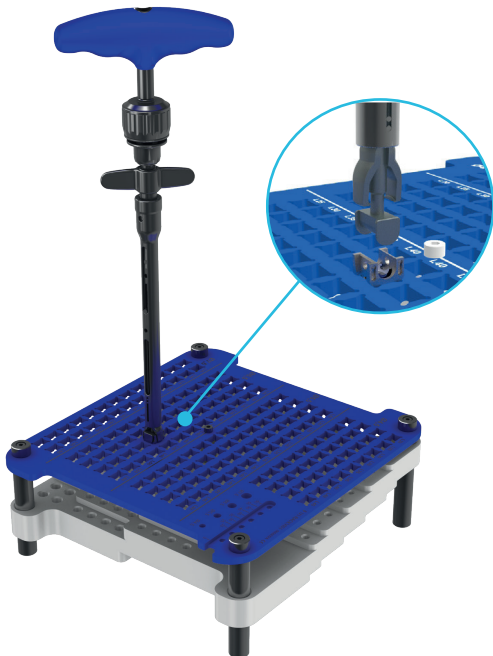
Cannulated Ratcheting
T-Handle
SD-A411TSH



Plus Screw Rack
U1-RACKVIS1

To connect a **universal pedicle screwdriver** *U1-A237* to the **cannulated ratcheting cylindrical handle** *SD-A411LSH* or **T-handle** *SD-A411TSH*, repeat the maneuver described in the previous step.

- 1 To catch a multiaxial screw with the universal pedicle screwdriver, position the screwdriver tip above the screw head in the **Plus screw rack** *U1-RACKVIS1*.
- 2 Engage the screwdriver in the screw head and push down.
- 3 While maintaining this position, turn the screwdriver's wing clockwise to catch the screw head and block the multiaxiality for insertion.



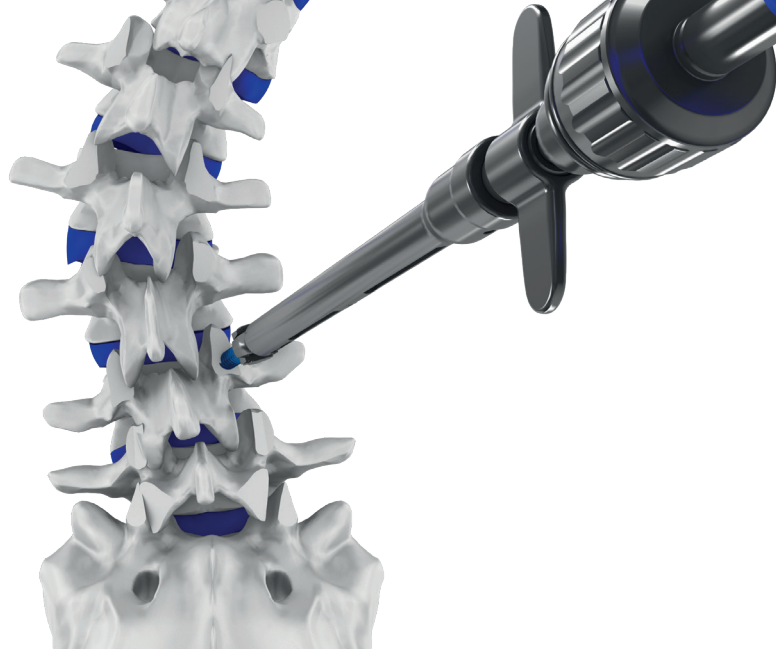
! WARNING !

The screw must always be taken from the rack as it ensures the proper alignment for insertion.

Then insert the screw in the pilot hole created in the first steps.

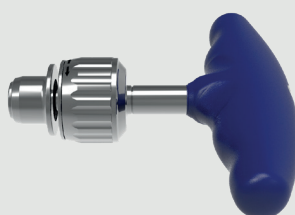
Once inserted, disconnect the screwdriver by turning the wing counterclockwise.

Repeat the step to insert as many multiaxial screws as planned.



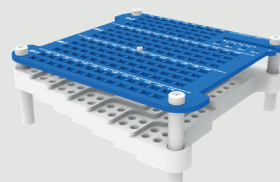
MONOAXIAL SCREW INSERTION

Pedicle Screwdriver
U1-A231



Cannulated Ratcheting T-Handle
SD-A411TSH

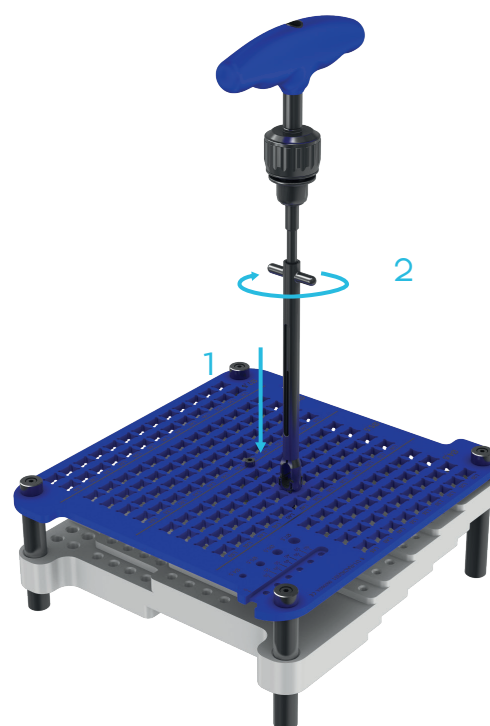
Cannulated Ratcheting Cylindrical Handle
SD-A411LSH



Plus Screw Rack
U1-RACKVIS1

To connect a monoaxial screw with the **pedicle screwdriver** [U1-A231](#), position the screwdriver over the screw head in the **Plus screw rack** [U1-RACKVIS1](#).

- 1 Catch the screw head by the two holes on its side thanks to the screwdriver tip. Just push it down on the screw head.
- 2 Once in this position, turn clockwise the screwdriver outer sleeve to secure the connection.



Then insert the screw in the pilot hole created in the first steps.

Once inserted, disconnect the screwdriver by turning the wing counterclockwise.

Repeat the step to insert as many monoaxial screws as planned.

It is recommended to instrument the apex of the deformity with monoaxial screws.



VI

HOOK SITES PREPARATION

Pedicle Feeler
U1-A111



Lamina Feeler
U1-A112



Transverse Process Feeler
U1-A113



The PLUS offers a large variety of hooks according to the patient's anatomy & location :



Pedicle Hook *U1-H100T*

Bifid blade for an effective pedicle bone purchase.

Angled Laminar Hook *U1-H202T*

For sub laminar position at lumbar area



Small Pedicle Hook *U1-H101T*

May be preferred when inferior articular thickness is small for an optimal anatomical fit.

Tall Body Hook *U1-H203T*

To position in an "inverting claw" with angled laminar hook.



Laminar Hook *U1-H200T*

Can be used either on supra or sub laminar position. Can also be used as transverse hook.

Small Laminar Hook *U1-H204T*

Can replace laminar hook when bone support is thin.



Narrow Laminar Hook *U1-H201T*

Narrow blade to reduce risk of instrumentational stenosis specially in the thoracic levels.

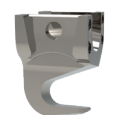
Oblique Laminar Hook *U1-H300T*

Obliquity reduce protrusion risks inside the canal.



Narrow oblique Laminar Hook
U1-H301T

Reduced blade to avoid overlapping in the canal.



PEDICLE HOOK

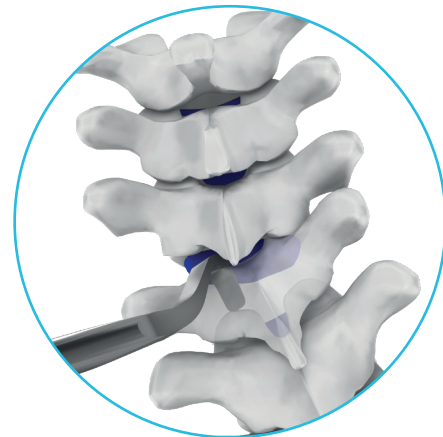
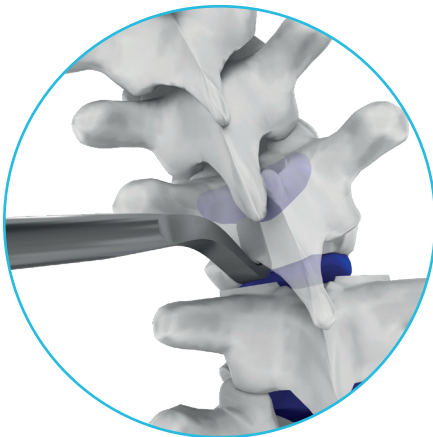
Locate the pedicle with the **pedicle feeler** *U1-A111* and create a footprint for the hook.

Structure might come in conflict and prevent the hook from proper bone purchase. To avoid it remove a part of the inferior facet and/or part of the superior facet of the adjacent vertebrae.

LAMINAR HOOK

Several hooks are designed to be placed whether in a supra or sub laminar position according instrumented area & bone thickness.

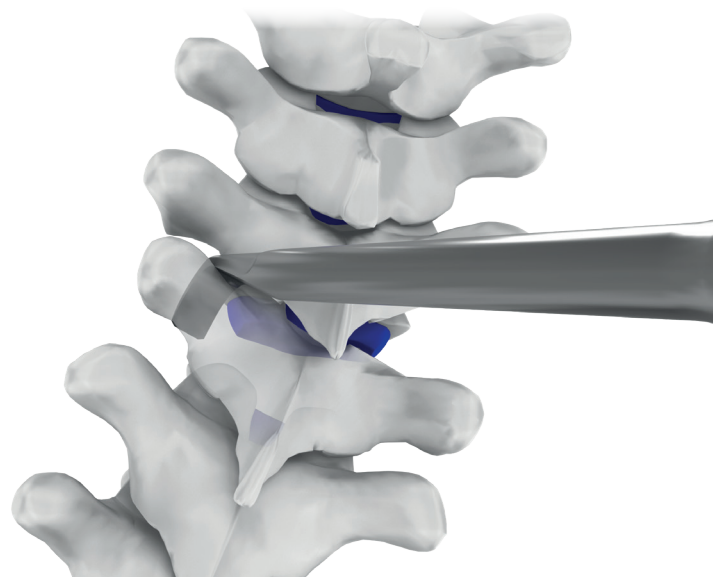
Locate the implantation site with the **lamina feeler** *U1-A112* and create a footprint for the hook. It can be used whether to prepare a sub laminar or a supra laminar positioning.



TRANSVERSE HOOK

Most of the laminar hooks can also be placed on the transverse process to form an inverting claw specially with a pedicle hook, giving a strong anchorage point in the upper thoracic part.

Use the **transverse process feeler** *U1-A113* to create a footprint for the hook at the desired position on the transverse process.



VII

HOOKS HANDLING AND POSITIONING

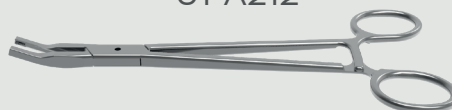
Universal Implant Holder
U1-A211



Hooks Rack
U1-RACKHOOK



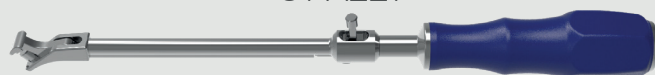
Lateral Implant Holder
U1-A212



Hook Pusher
U1-A222



Hook Holder Pusher
U1-A221



The hook can be taken from the **hooks rack** *U1-RACKHOOK* whether with the **universal implant holder** *U1-A211*, the **lateral implant holder** *U1-A212* or with the **hook holder pusher** *U1-A221*. Here are some examples of the different instruments options :

Example of pedicle hook positioning with a hook holder pusher.

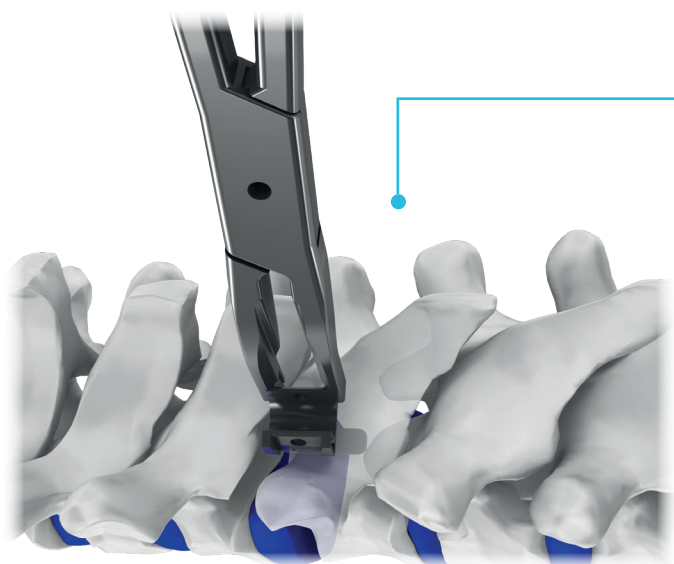
Once the hook is in the proper position, release it by pushing the hook holder pusher's button.

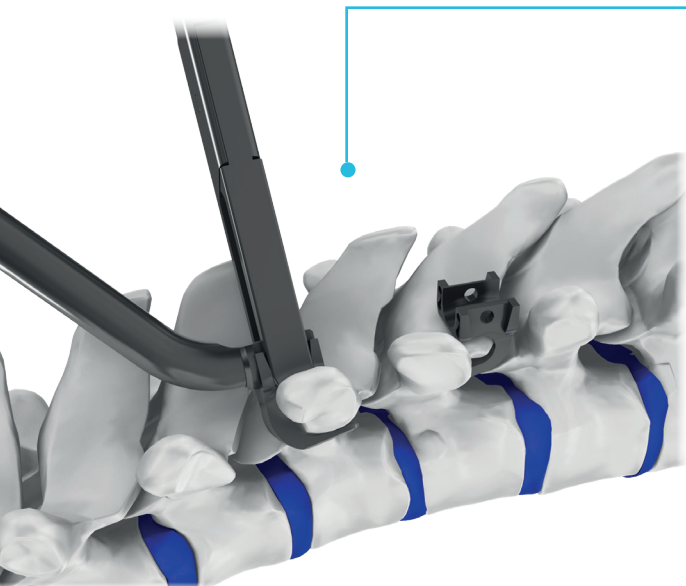


Example of supra laminar hook positioning with lateral implant holder.

Engage the tip of the lateral implant holder in the corresponding female footprint of one hook's side.

Then position the hook in the proper position. If needed you can push it forward with a hook pusher.





Example of an inverting claw with transverse process hook positioning and pedicle hook.

Catch the hook by the two holes on either side thanks to the universal implant holder.

Place the hook on the transverse process, the blade being caudally oriented.

Then push it forward with the hook pusher to strongly anchor it in the transverse process giving a powerful inverting claw with the pedicle hook already in place below.

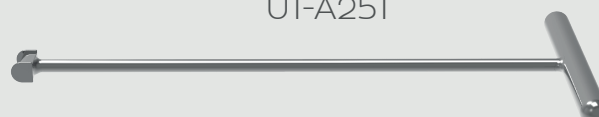
VIII

IMPLANT REPOSITIONING

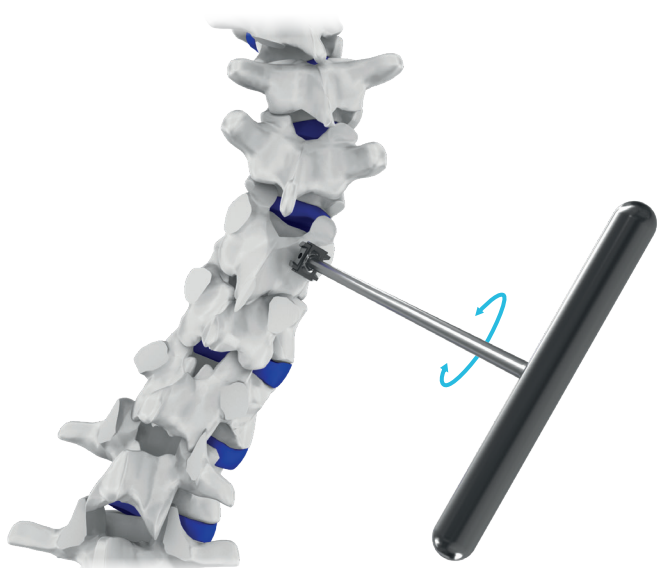
Hook Repositioner
U1-A226



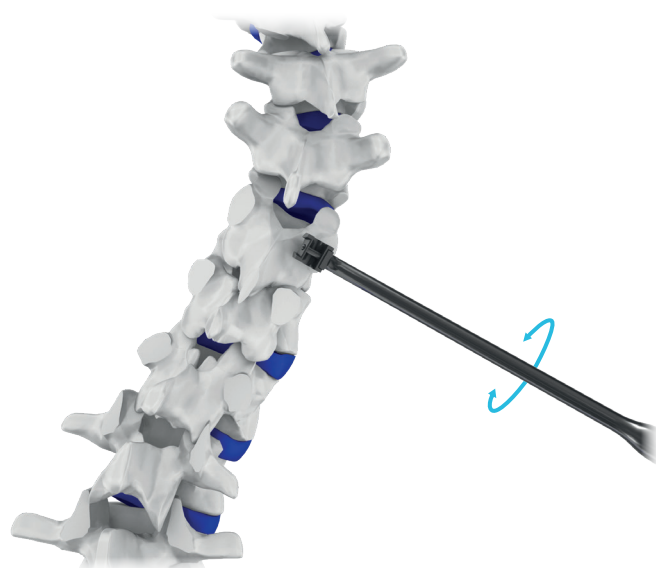
Screw Adjuster
U1-A251



To adjust the screw depth or to align an implant with others and facilitate the rod positioning, use the **screw adjuster** U1-A251 or the **hook repositioner** U1-A226.



With the screw adjuster, insert it in the implant saddle and reorientate the screw head.



With the hook repositioner, slide the pin through the holes on the implant's side and reorientate it.

IX

ROD HANLING AND CONTOURING

Curved Rod Holder
U1-A213N1



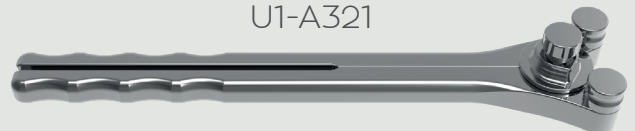
Rod template
U1-A324



Rod holder
U1-A214S



French Bender
U1-A321

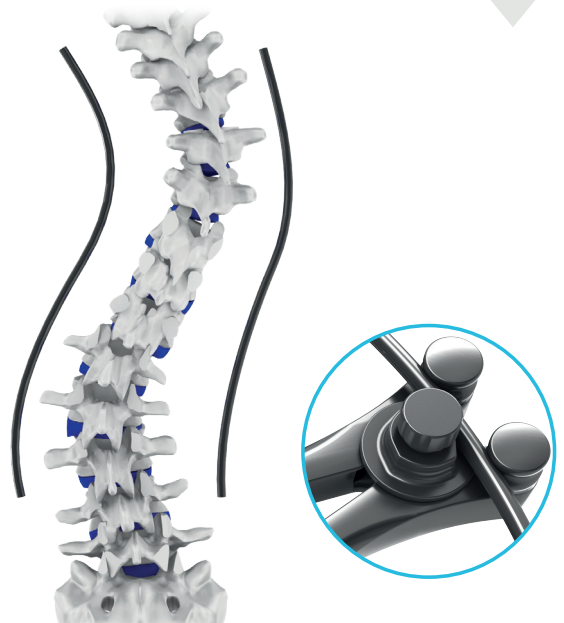


Once the screws and hook placement have been confirmed with radiography, prepare the rod to be inserted.

Use the **rod template** U1-A324 to determine the length and the required contouring.

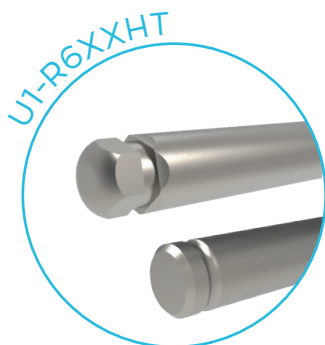
Contour the rod in the sagittal & coronal planes thanks to the **french bender** U1-A321.

The rod can then be manipulated with the **rod holder** U1-A214S or the **curved rod holder** U1-A213N1.



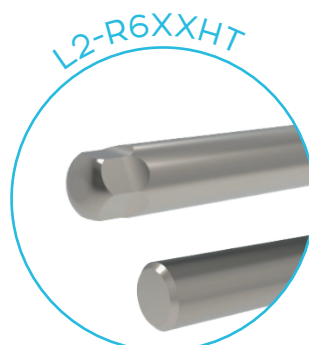
ROD MATERIALS

The PLUS system offers three different rod materials according patient's age and the chosen strategy : moldable T40 rod, TiA6V alloy rods & chromium cobalt rods.



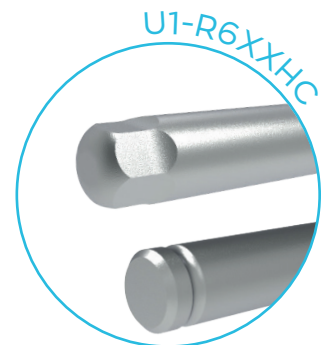
Material : T40

Malleable rods
One groove at each side



Material : TiA6V

Rigid rods
No groove at all

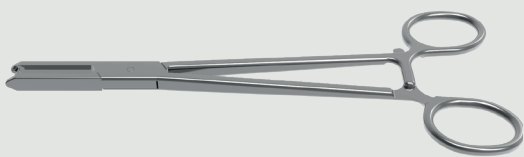


Material : CoCr

Really stiff rods
One groove at the non hexagonal end

X

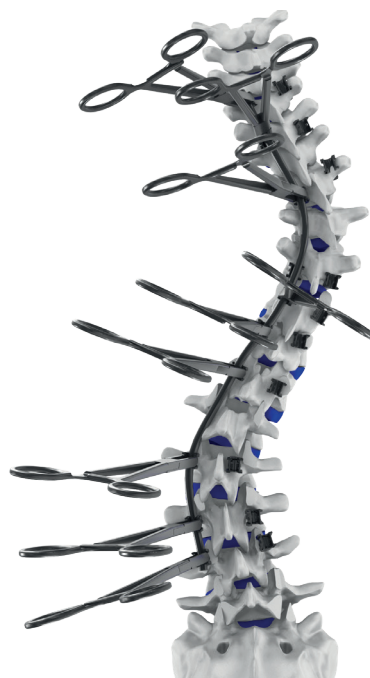
ROD ALIGNMENT



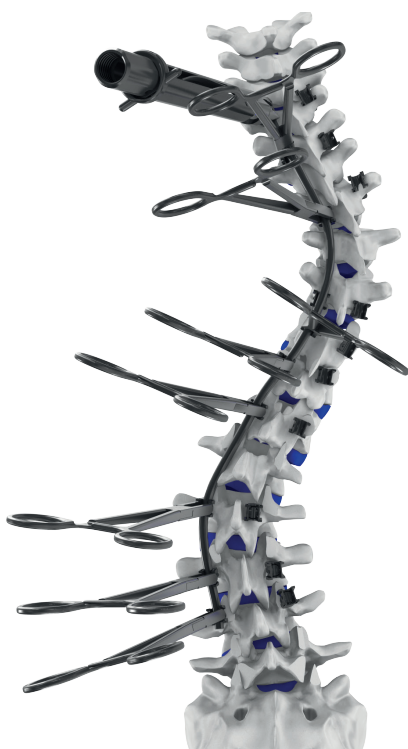
Universal Implant Holder
U1-A211

Use one of the different rod holder to position the rod above the construct on the concave side.

You can use the **universal implant holder** [U1-A211](#) to secure progressively the rod in the implant and align it with all implants in the construct before translating it in the implants saddle.



XI CLIP INSERTION & ROD TRANSLATION



Once aligned, the rod needs to be secured and closed in the saddles.

Starting from the most cephalad implant, remove the positioned **universal implant holder** [U1-A211](#) and replace it by a **clip guide** [U1-A337](#).

Sometimes, the distance or bony structures prevent the clip guide from being easily positioned. However the Plus system offers several options to ease its placement.

CLIP GUIDE PLACEMENT

Clip guide
U1-A337

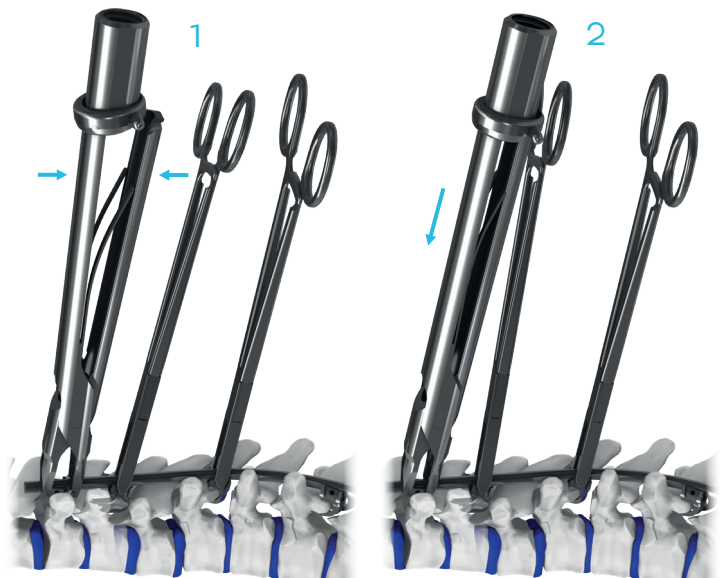
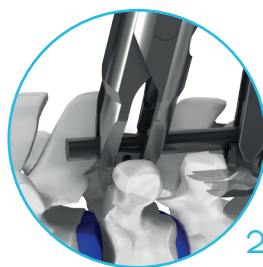
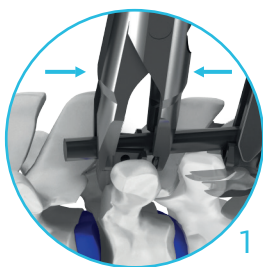
Rod Approximator
U1-A370

Rod Pusher
U1-A224

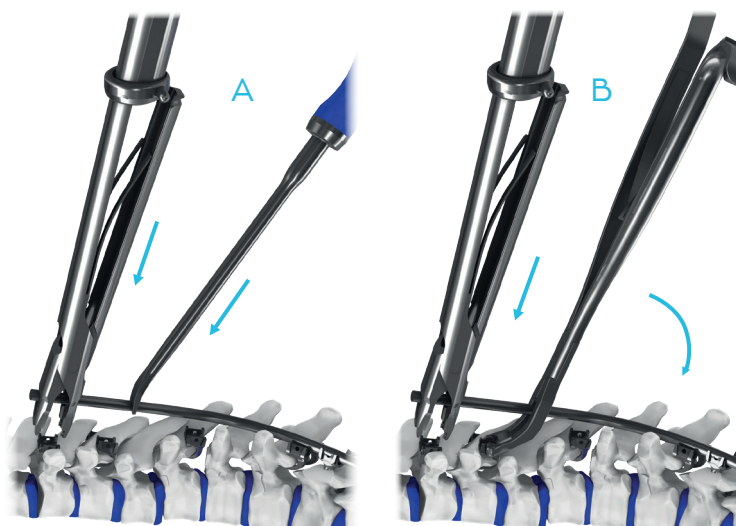
Fork Guide
U1-A336

Place the distal end of the **clip guide** U1-A337 in such manner that the protrusion of the instruments comes into position in the female cavities on either side of the implants :

- 1 Squeeze the clip guide flange to catch the head.
- 2 Lower the securisation ring to avoid any disconnection.

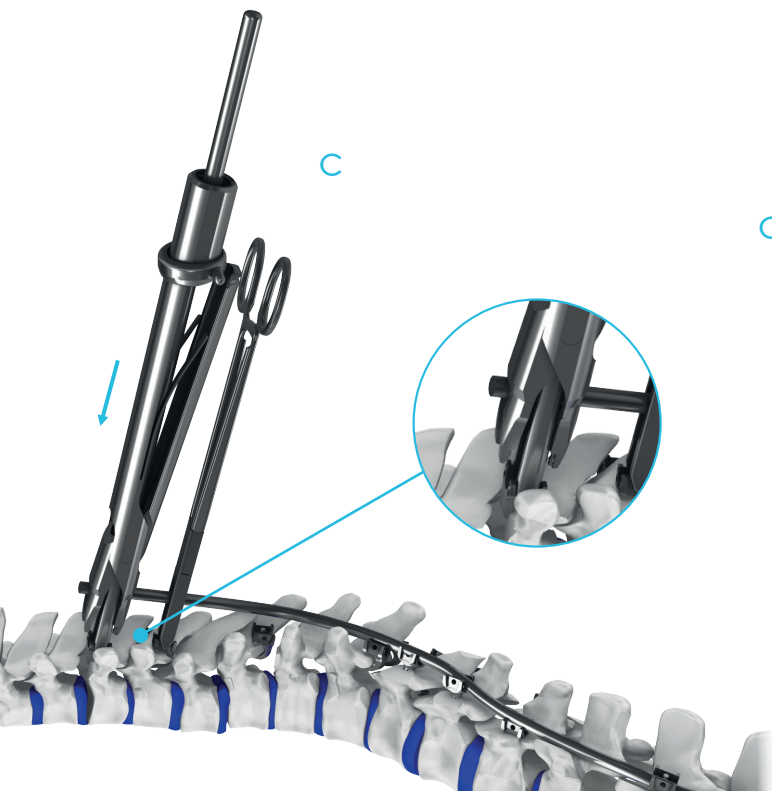


If the rod is too high and the clip guide can not be connected to the implant's head, you can use either the rod pusher (A), the rod approximator (B) or the fork guide (C) :



A Use the **rod pusher** U1-A224 to reduce the rod first and position the clip guide.

B Connect the **rod approximator** U1-A370 to the implant by grabbing the two holes with the rocker studs and lower the rod by bringing down the rocker. Keeping this position, place the clip guide on the implant.



- C Catch the implant's head with the **fork guide** [U1-A336](#), the two protrusions at its distal part coming into the two holes on either side.

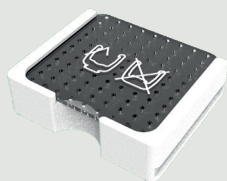
Slide the clip guide above the fork guide to reach the implant's head and capture it as described above.

CLIP INSERTION

Clip guide
U1-A337



Clips Rack
U1-RACKCLIP



Clip Introducer
U1-A338



Clip
U1-L100T

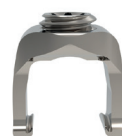


Once the clip guide is in place, load a **clip** [U1-L100T](#) on the **clip introducer** [U1-A338](#).

Position the clip introducer on the **clips rack** [U1-RACKCLIP](#) and tilt it whilst pressing on it to grasp a clip.

! WARNING !

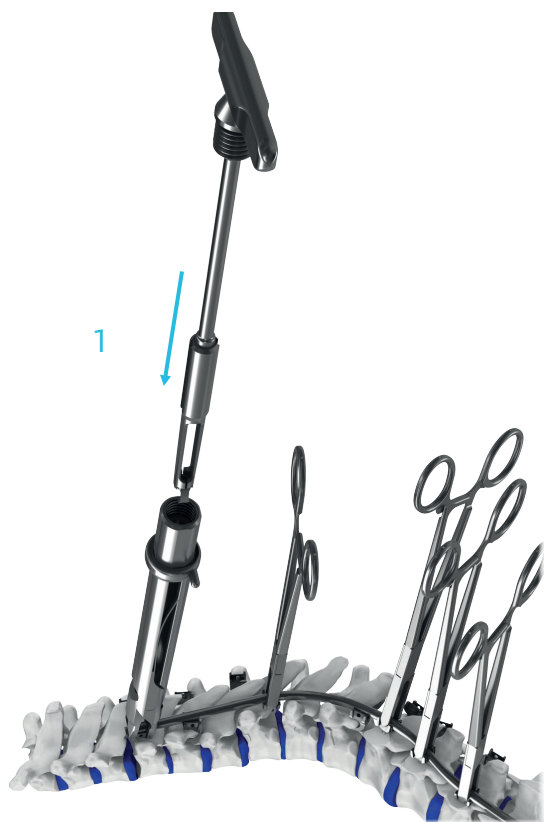
Always check that the set screw does not appear inside the clip as shown besides. It could result in a mispositioned clip.



Once the clip guide placed and a clip loaded on the clip introducer, translate the rod in the implant saddle :

1 Slide the clip introducer into the clip guide.

2 When the threaded part of the clip introducer meets the superior edge of the clip guide, begin threading to progressively reduce the rod.



3 To remove the clip guide after clip insertion, unscrew the clip introducer and lift the securisation ring.

The proper clip positioning and rod closure in the implant will be confirm by one or two audible «click» at the end of the reduction.

Repeat this step on all the implants on the concave side to fully translate the rod.

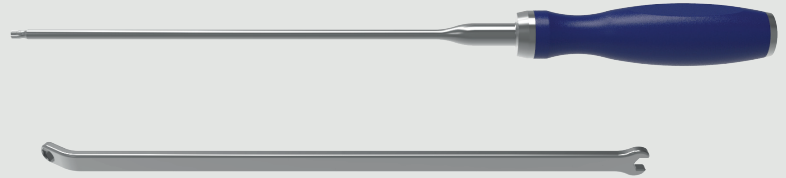
Thanks to the unique clip technology, the rods remain partially free thanks to the pivot link which allows a $\pm 10^\circ$ sagittal mobility even with monoaxial screw & hook. This self adaptation of the clip will share evenly the correction strength in the following steps.



Rod Gripper
U1-A311



Long T20 Screwdriver
U1-A415

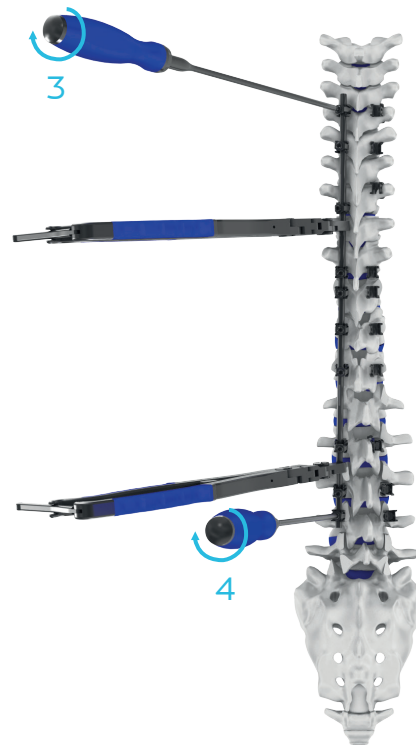
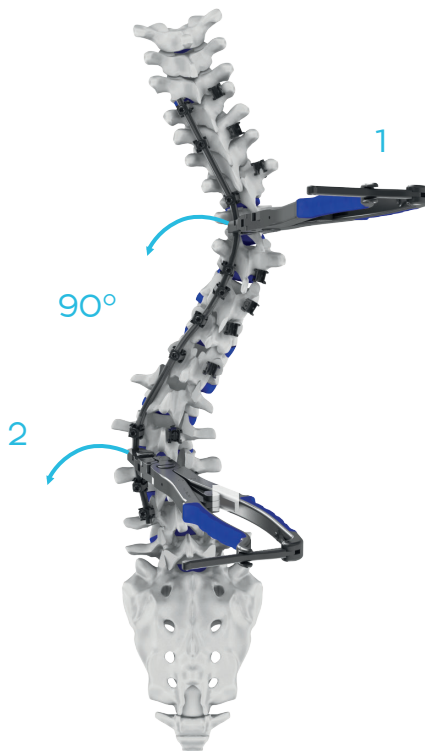


Open Rod Rotation Wrench
U1-A344N1



When all the clips are inserted on the concave side, the rod can be derotated to restore the spine sagittal balance :

- 1 Grab the rod with the two **rod grippers** [U1-A311](#).
- 2 Rotate the rod 90° around its axis.



- 3 Tighten the most cephalad and caudal implants and some others in the construct with the **long T20 screwdriver** [U1-A415](#).
- 4 Tighten the most caudal implants. This will keep the correction of this side for second rod insertion or further correction.

When using the **straight rigid rod** [L2-R6XXHT](#), **Co-Cr rigid rods** [U1-R625HC](#) or **malleable rod** [U1-R6XXHT](#) :

Grab the hexagonal end of the rod thanks to one or the other side of the **open rod rotation wrench** [U1-A344N1](#) and use it to help in rod derotation.



XIII

DIRECT VERTEBRAL DEROTATION

Clip guide
U1-A337



Long T20 Screwdriver
U1-A415



Clip Introducer
U1-A338

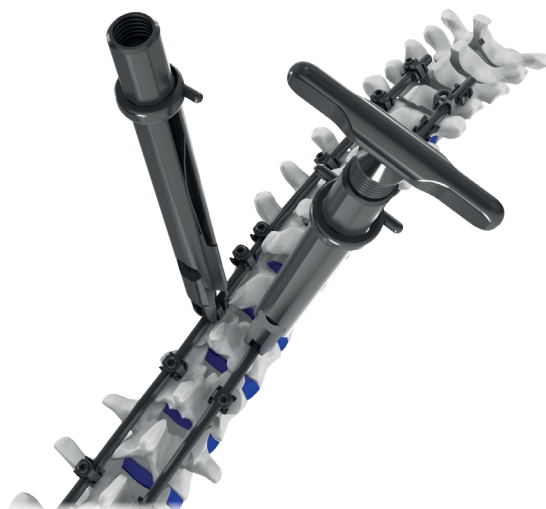


The Direct Vertebral Derotation (DVD) technique comes as an addition to the usual correction techniques and permits to reduce rib hump while inserting the second rod.

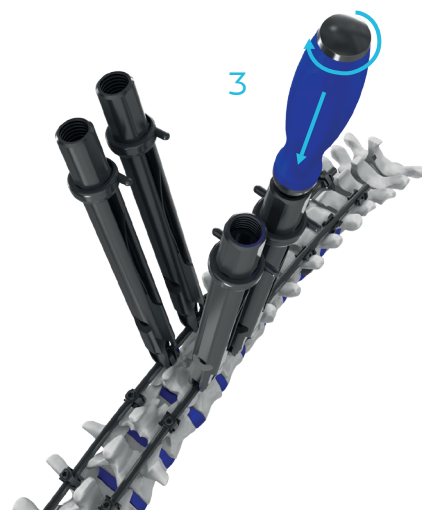
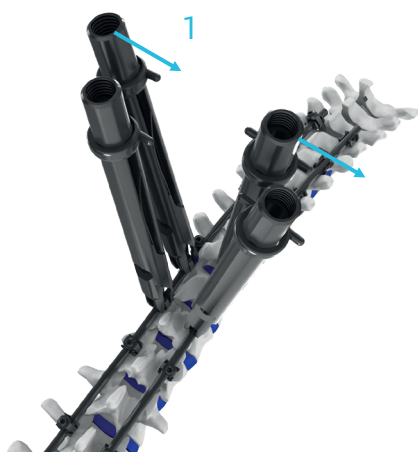
! WARNING !

This technique can only be implemented when using monoaxial screws bilaterally and instrumented at all stages

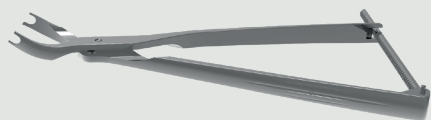
Once the preliminary tightening has been done on the concave side, the second rod is put in place on the convex side and the lowest neutral vertebra are provisionally tightened with the **long t20 screwdriver** U1-A415.



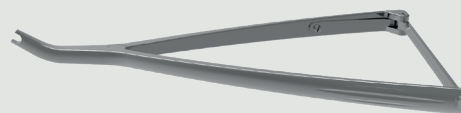
- 1 **Clip guides** U1-A337 are positioned stage by stage on the levels overlying the neutral vertebra. Always keep at least two levels equipped.
- 2 Derotate each of the vertebra individually using the vertebra below as reference.
- 3 Once derotated, a clip is inserted with the **clip introducer** U1-A338 & tightened with the **long t20 screwdriver** U1-A415.



Dual Axis Compressor
U1-A343

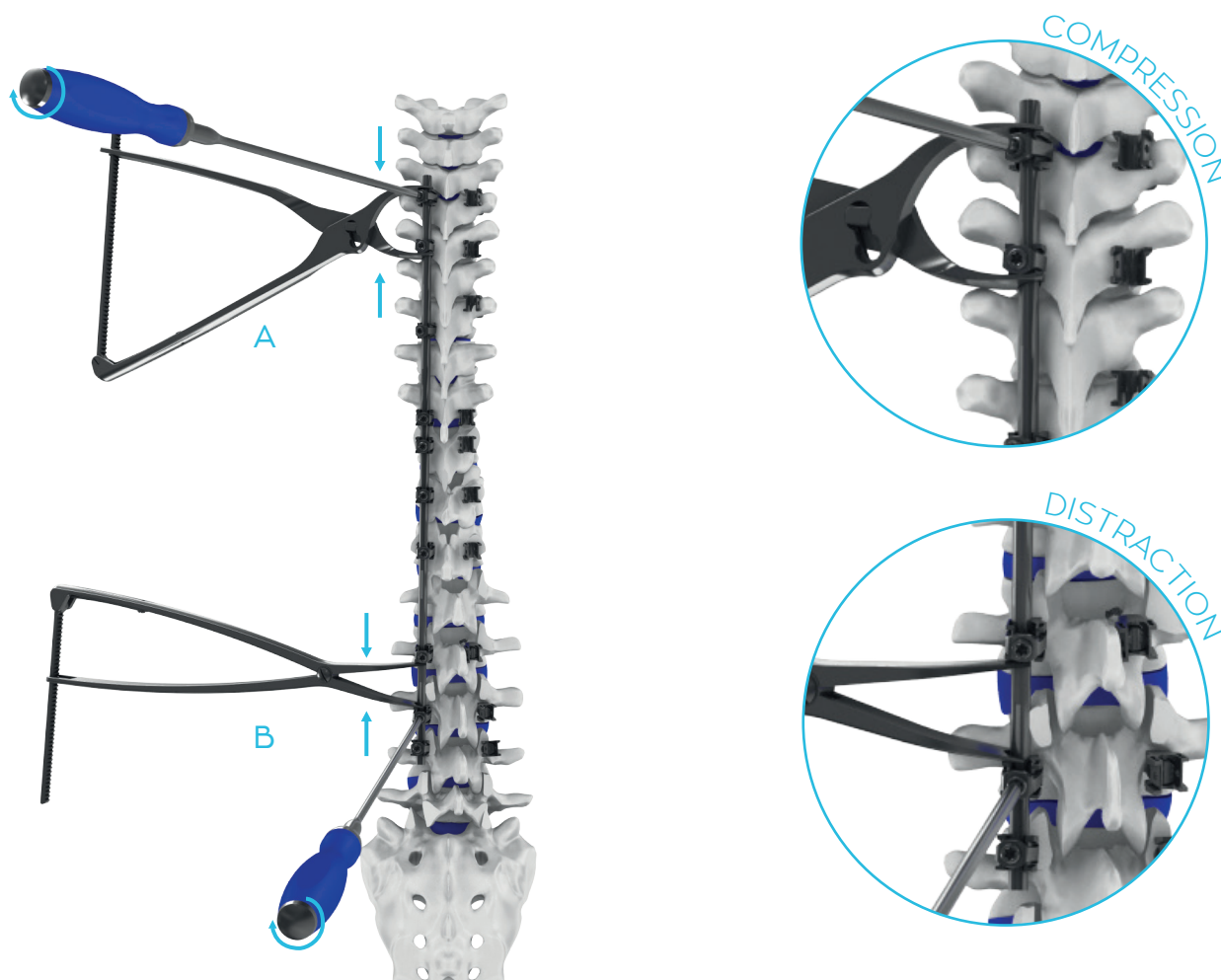


Distractor
U1-A342



To adjust the disc height or the curvature of the spine, a **distractor** U1-A342 and a **dual axis compressor** U1-A343 are available.

- A To compress:** lock the setscrew on the screw used as « reference », place the jaw of the compressor as shown on the picture and compress by squeezing the handles. Lock the untightened setscrew when the desired compression is obtained.
- B To distract:** lock the setscrew on the screw used as « reference », place the jaw of the distractor as shown on the picture and distract by squeezing the handles. Lock the tightened setscrew when the desired distraction is obtained.





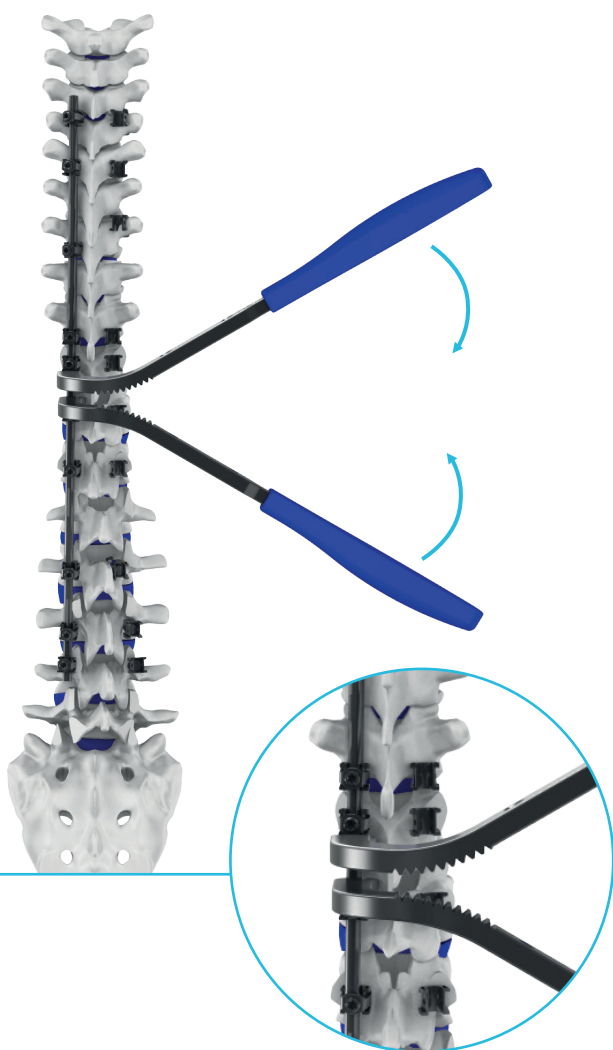
Right Coronal Bender / U1-A326
Left Coronal Bender / U1-A327

Right Sagittal Bender / U1-A328
Left Sagittal Bender / U1-A329

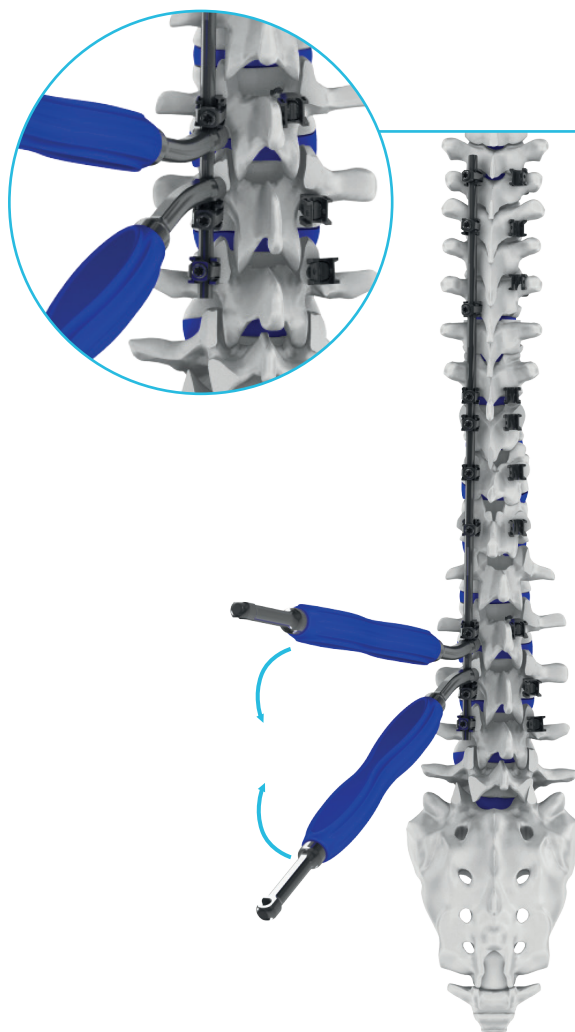


The **sagittal bender right/left** U1-A328/U1-A329 and the **coronal bender right/left** U1-A326/U1-A327 are available for final adjustment of the correction.

In Situ coronal bending



In Situ sagittal bending



Once the in situ bending is done and all clip locked, contour the stabilizing rod and insert it in the convex side (if not using the DVD technique).

Counter Torque for Clip
U1-A420-4



T-20 Shaft
U1-A416



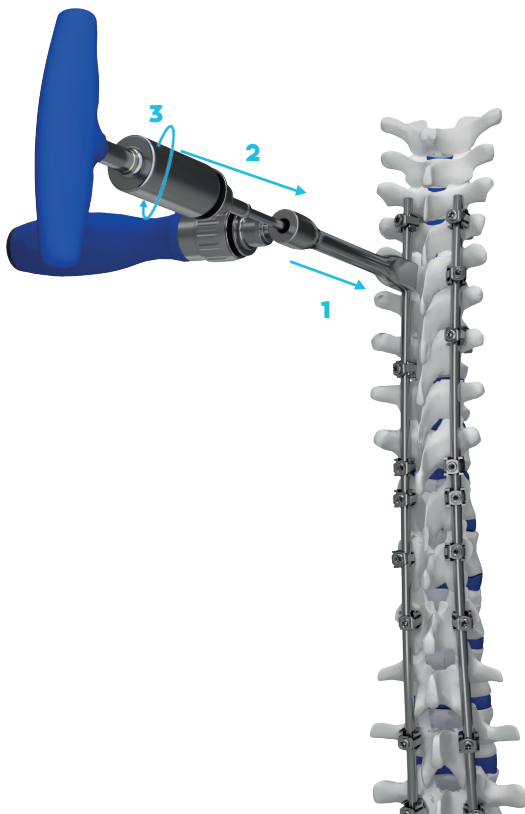
Cannulated ratcheting cylindrical handle
SD-A411LSH



Torque Limiting Handle
U1-A418T



The stabilizing rod being in place and all clips temporary locked on each implants. The whole assembly can be tightened with the torque limiting handle.



Connect the **T20 shaft** *U1-A416* to the **torque limiting handle** *U1-A418T*.

- 1 Position the **counter torque for clip** *U1-A420-4* on the screw head as shown besides.
- 2 Slide the **T20 shaft** *U1-A416* into the counter torque until the distal tip of the shaft engages in the setscrew's footprint..
- 3 While strongly holding the counter torque with the cylindrical handle, turn clockwise the torque limiting handle until it clicks 3 times.

Repeat this step on all setscrews to ensure final tightening of the whole assembly.

! WARNING !

The proper tightening of the implants is ensured by the 3 audible clicks produced by the torque limiting handle.

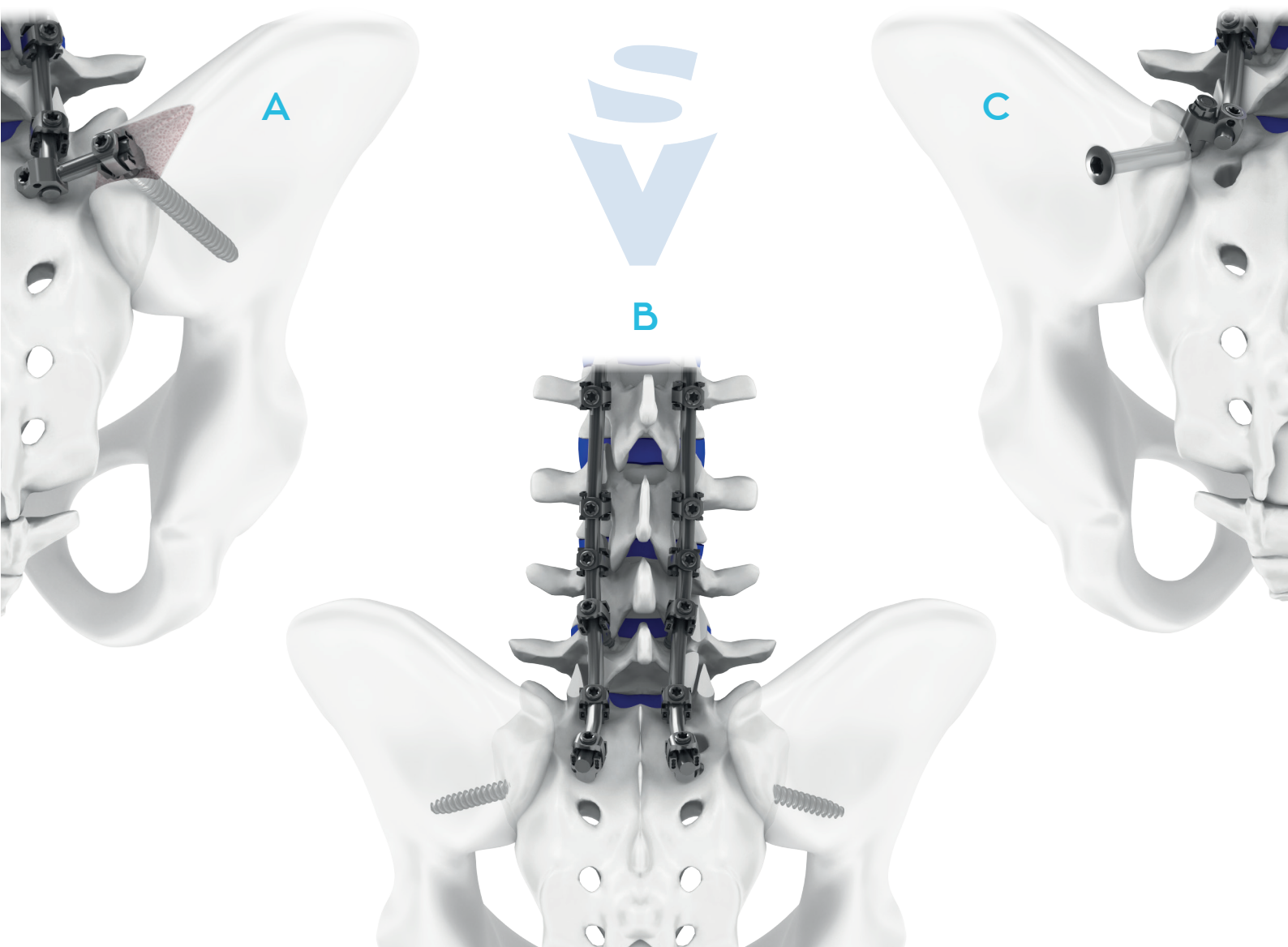
Never use the torque limiting handle to unscrew a setscrew. Use the long T20 screwdriver.

Fusion of the lumbosacral spine remains one of the main challenges in spine surgery. The complex local anatomy, unique biomechanical forces and poor bone quality of the sacrum explain why fusions of lumbosacral spine have been notoriously difficult to perform.

To meet this need of ilio-sacral fixations, SpineVision developed several implants to restore the pelvic obliquity, provide strong anchor points and enhance fusion.

We will focus on the three following solutions :

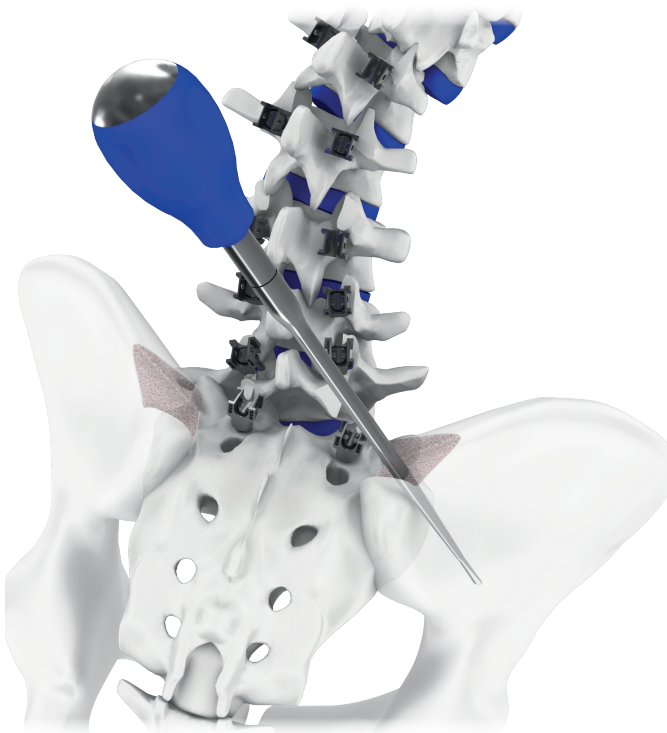
A	Offset Iliac Connector.....	24
B	S2-Alar-Iliac Screw.....	26
C	SV Ilio Sacral Connector.....	27



Site preparation

The traditional entry point for Iliac screw is in the posterior iliac crest and counter-sunk to prevent pressure ulcers over the implant.

A small portion of the iliac crest is resected to create this window for screw insertion.



Pilot hole preparation

To create a pathway for screws in the ilium, use the different pedicle probes as described in [step II](#).

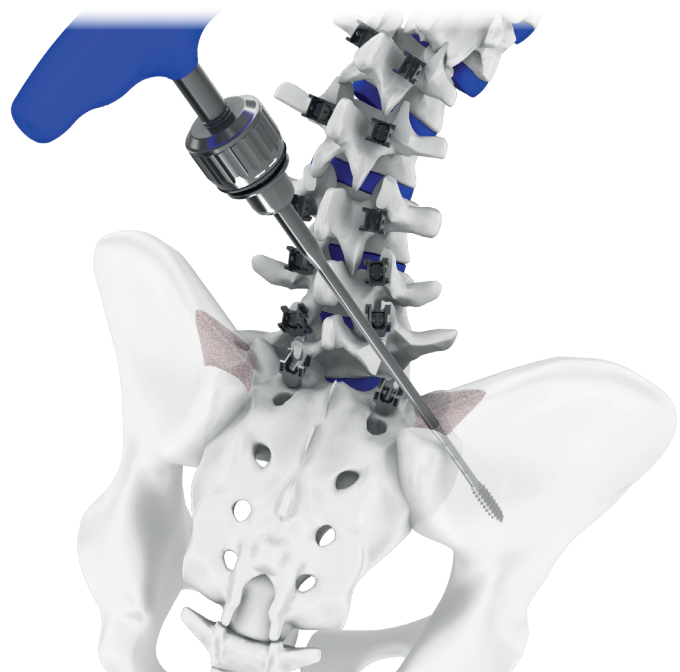
Penetrate between the two cortices in a ventral/caudal direction toward the anterior inferior iliac spine.

The appropriate length and depth for each screw are estimated by the surgeon.

Tapping

Connect the sharp taps on the ratcheting handle as described in [step III](#). Once in position, engage the ratcheting handle into « screwing » mode «R» and tap the pilot hole.

The Ilium being a highly cortical bone, it is mandatory to tap the whole distance corresponding to the chosen screw's length.



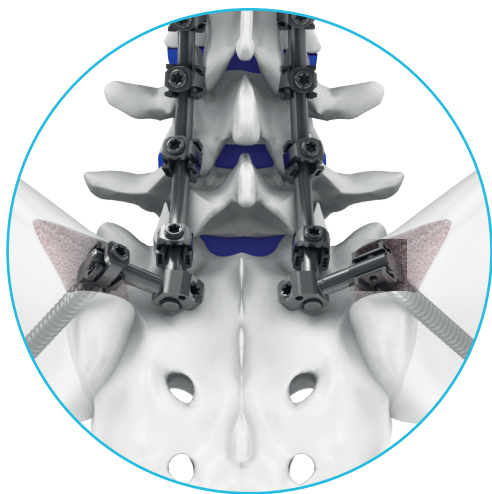
Screw insertion

Connect the chosen screw on the corresponding screwdriver : universal pedicle screwdriver ([step IV](#)) for multiaxial screws or pedicle screwdriver for monoaxial screws ([step V](#)).

Once in position, engage the ratcheting handle into « screwing » mode «R», engage the screw on the pilot hole and insert it in the ilium.



Always confirm the proper screw positioning in all plane using fluoroscopy.



Connector placement

When the rod is fully sited in all implants above S1 :

Position the «rod part» of the connector in the iliac screw head and slip the «jaw part» on the distal free end of the longitudinal rod.

Once in position put a clip on the iliac screw head and tighten it using the long T20 screwdriver. ([step XI](#))

Being positioned in the iliac screw head, the connector can be used to orientate it perpendicular to the rod to ease connection. Unscrew the connector setscrew as much as possible before sliding it on the rod to ease connection on the rod.

Final tightening

After second rod insertion and prior to tightening, distraction and compression between the implants on both sides can be done.

Once the final adjustment are done, perform the final tightening ([step XVI](#)).



S2-ALAR-ILIAC SCREWS

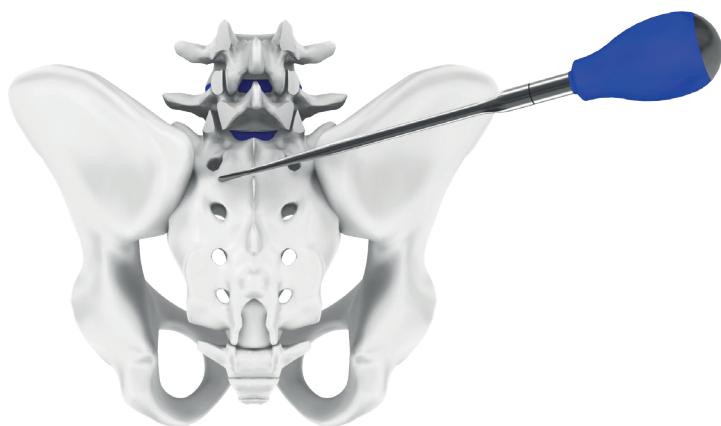
The PLUS multiaxial screws are particularly indicated to perform a S2-Alar-Iliac (S2AI) fixation thanks to the 180° transverse mobility of the screw head.



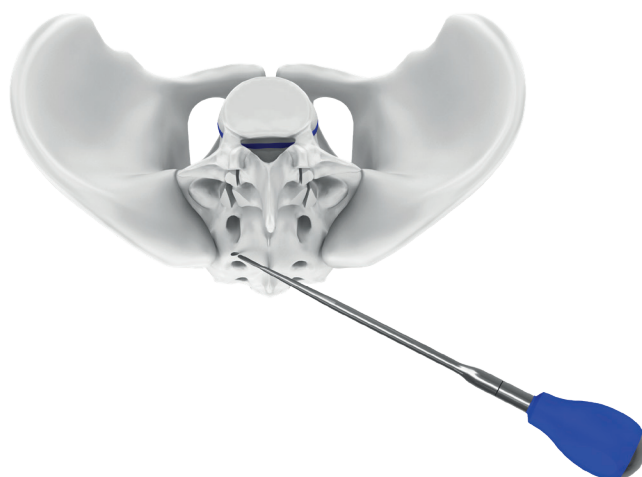
Pilot hole preparation

The entry point for the S2AI screw is determined by drawing a virtual line connecting the lateral borders of the S1 & S2 dorsal foramina. Then find the midpoint between these foramina. Break the cortical bone at this point with the square awl. (step II)

Using the different probes available to create the pathway for the S2AI screws. The screw trajectory must be adapted according to the patient's anatomy and determined for by most cases as:

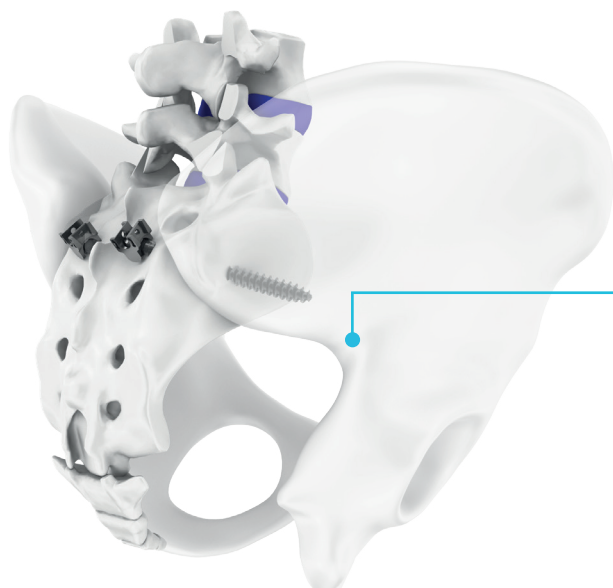


18°+/- 1,8° for the caudal angle
in the saggital plane.



42°+/- 2° for the horizontal angle
in the coronal plane.

Tapping



The sciatic notch must absolutely be avoided.

However the best trajectory for the S2AI screw is just above the notch to give a strong anti pull out point with the screw's bottom thread being in contact with the cortical bone. (step III)

The Ilium being a highly cortical bone, it is mandatory to tap the whole distance corresponding to the chosen screw's length. Refer to page III for tapping.

Screw insertion

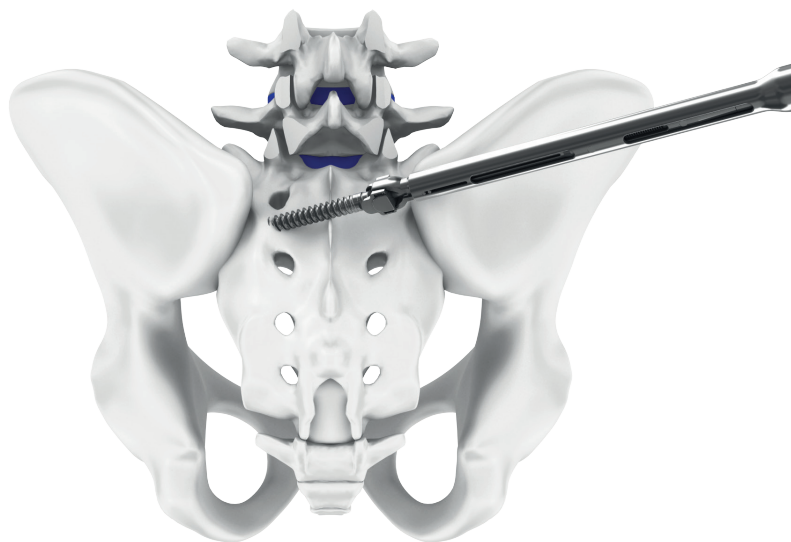
Connect the multiaxial screw on the universal pedicle screwdriver following [step IV](#).

Once in position, put the ratcheting handle into « screwing » mode «R», engage the screw on the pilot hole and insert it according the created pathway.

Repeat these steps on the other side.



Always confirm the proper screw positioning in all plane using fluoroscopy.

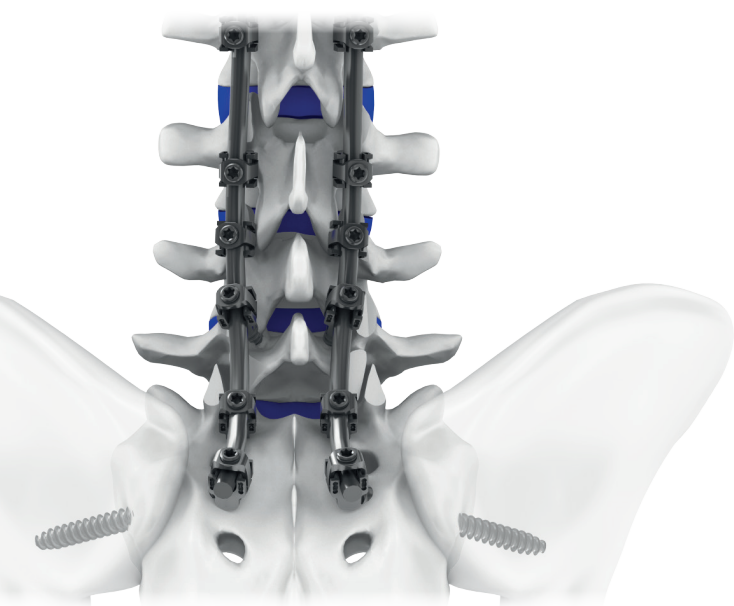


Rod placement

Insert the rod and persuade it using the clip guide and the clip introducer to position the clip. ([step IX](#))

Perform the required correction maneuvers (bending, compression/distraction etc...)

Perform the final tightening with the torque limiting handle and the torque limiting shaft when the desired correction is obtained. ([step XVI](#))



SV ILIO SACRAL CONNECTOR

Screw trajectory

Identify the orientation of the sacrum in all planes, paying special attention to the sagittal plane. The ilio-sacral screws should be placed :



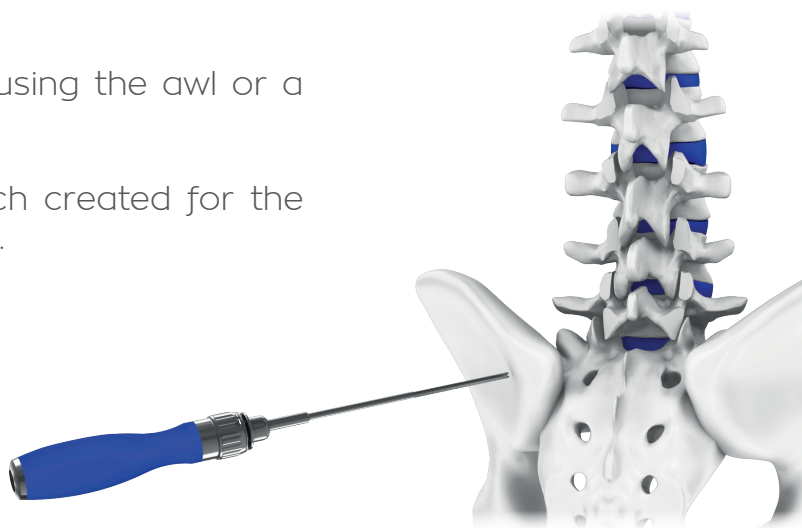
- Parallel to the end plate of S1.
- Perpendicular to the posterior cortex of S1.
- Angled about 20 to 30° in the transversal plane for most cases.

First remove the inferior facet of L5 and identify the superior facet of S1.

Create a sacral notch for the connector using the awl or a probe as described in [step II](#).

Place the tip of the forefinger in the notch created for the connector and the thumb on the iliac crest.

Find the trajectory by aiming at the tip of the forefinger with the **cannulated triphine for ilio sacral fixation U1-A125**.



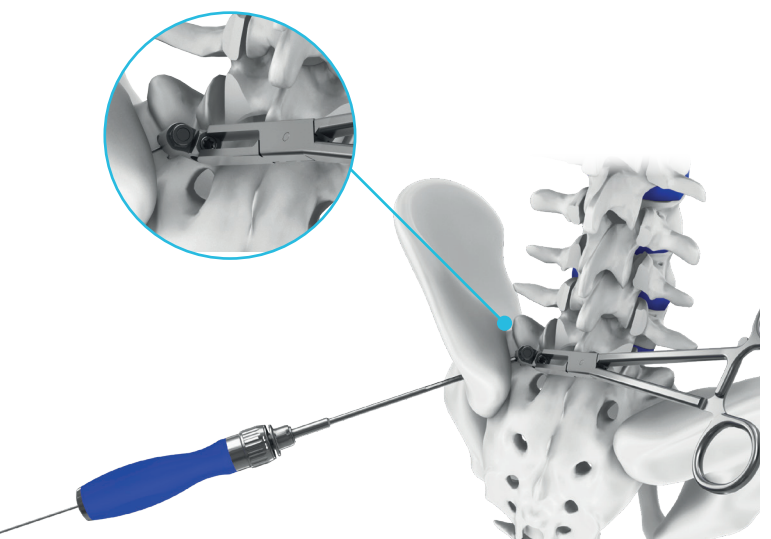
Extend the trajectory of the triphine to the anterior cortical wall of the sacrum. Once the cancellous bone of the sacrum has been penetrated, significant resistance will be met at the anterior cortex of S1.

Pin insertion

Insert the **pin for ilio sacral fixation U1-A126** gently inside the triphine with a hammer until the guide-wire hits the anterior cortical wall.

Remove the triphine and the guide wire just sufficiently to insert the connector held with the universal implant holder.

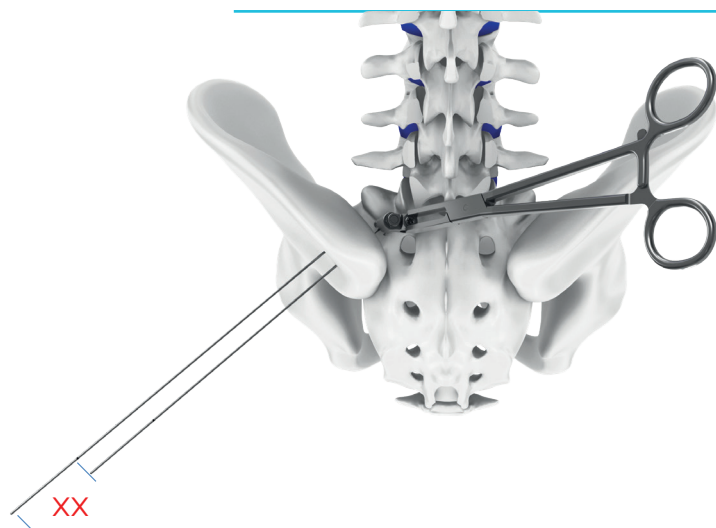
Once the connector is in the good place, push back the guide wire in its initial position and fully remove the triphine.



Screw size estimation

Position a second same-sized guide-wire against the iliac crest and measure the length protruding beyond the inserted guide-wire

The measured distance will give you the length **XX** for the sacro iliac screw U1-I7XXT.

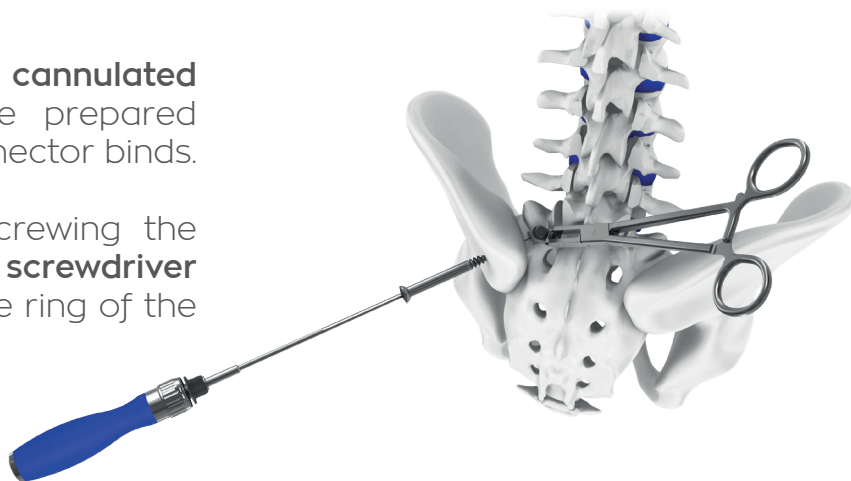


Screw insertion

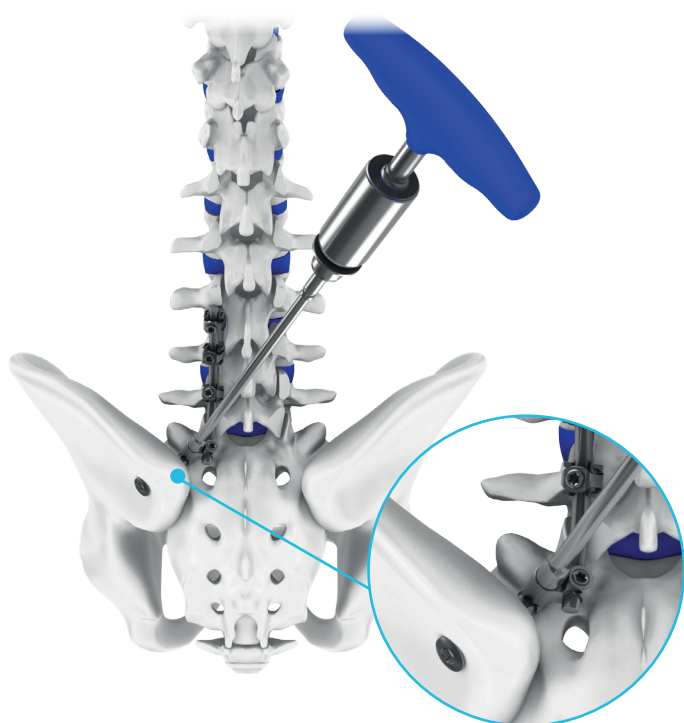
Insert the screw with the **hex cannulated screwdriver** [U1-A232](#). Follow the prepared pathway in the ilium until the connector binds.

Unblock the connector by unscrewing the locking nut with the **inner hex screwdriver** [U1-A413](#) and pass the screw in the ring of the connector.

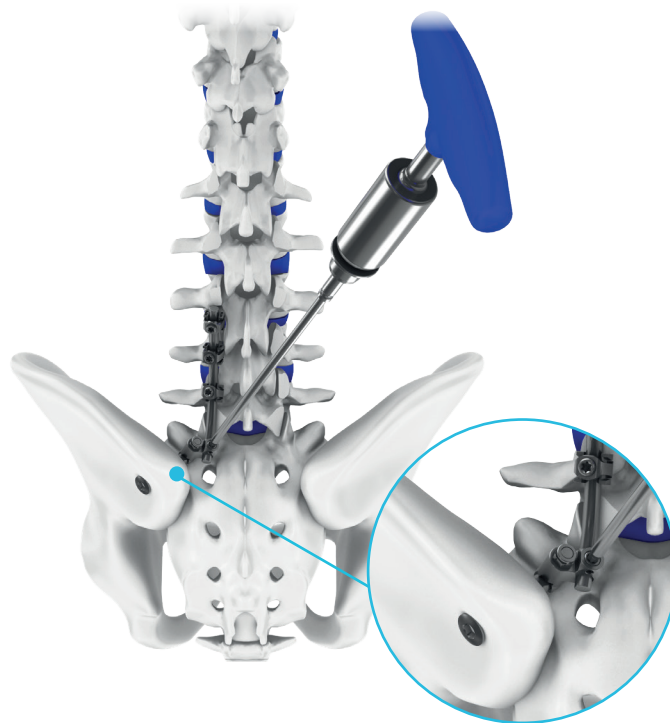
Carry on screw insertion into the sacrum. The head of the ilio S1 screw must be in contact with the iliac crest.



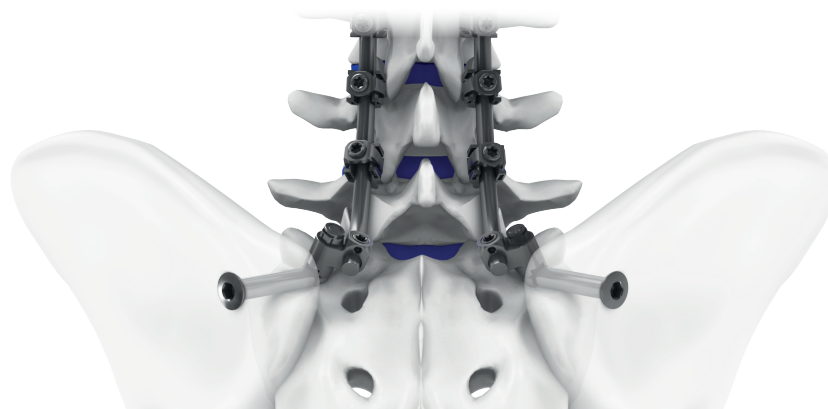
Final tightening



Once the rod is in place, perform the final tightening of the connector's nut using the **torque limiting handle** [U1-A418T](#) and the **inner hex screwdriver** [U1-A413](#).



Then use the **torque limiting shaft** [U1-A416](#) and the same **torque limiting handle** [U1-A418T](#) to finally tighten the connector's setscrew.



Clip Guard
U1-A421



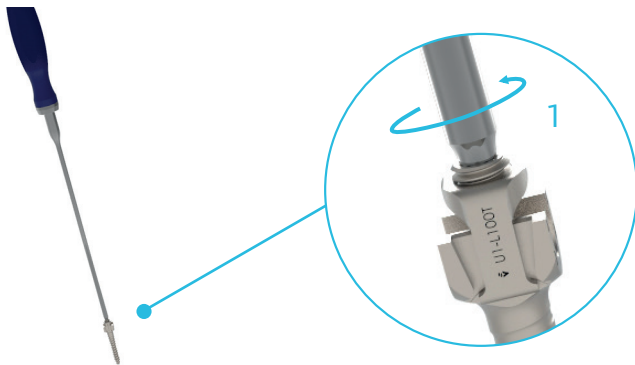
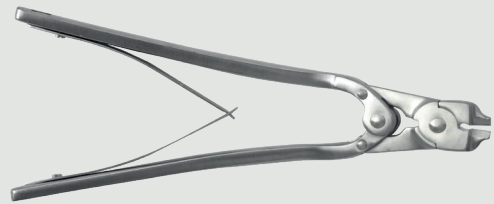
Setscrew Inserter
U1-A215



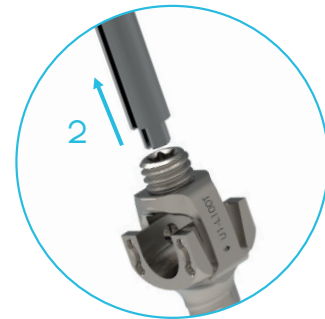
Long T20 Screwdriver
U1-A415



Clip Remover
U1-A422



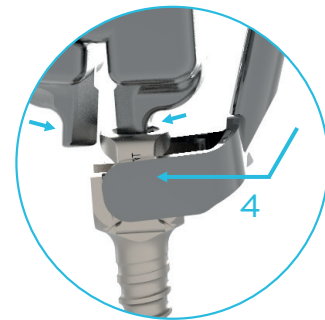
- 1 Unscrew the setscrew from the **clip U1-L100T** using the **long T20 screwdriver U1-A415**.



- 2 Once it is almost completely unscrewed, hold it using the **setscrew inserter U1-A215**.



- 3 Once the setscrew is removed from the clip, place the **clip remover U1-A422** and cut one side of the clip.



- 4 Place the clip remover on the other side. Put the **clip guard U1-A421** as shown on the figure and cut.

If they are not held during second side cutting, both parts of the clip risk being ejected. It is mandatory to use the clip guard and to retrieve the clip's part with a needle holder or a similar instrument while maintaining the clip guard positioned.



Curved Lumbar Spatula
U1-A127C



Straight Lenke Probe
U1-A128S



Lenke Probe
U1-A128



Lumbar Spatula
U1-A127



Square Awl
U1-A121N1



Pedicule Probe with ball tip
U1-A124N1



Sharp Taps
U1-A13XS



Cannulated Ratcheting Cylindrical Handle
SD-A411LSH



Cannulated Ratcheting T-Handle
SD-A411TSH



Universal Pedicle Screwdriver
U1-A237



Pedicle Screwdriver
U1-A231



Pedicle Feeler
U1-A111



Lamina Feeler
U1-A112



Transverse Process Feeler
U1-A113



Hook Pusher
U1-A222



Hook Holder Pusher
U1-A221



Universal Implant Holder
U1-A211



Lateral Implant Holder
U1-A212



Hook Repositioner
U1-A226



Screw Adjuster
U1-A251



Curved Rod Holder
U1-A213N1



Rod holder
U1-A214S



French Bender
U1-A321



Clip guide
U1-A337



Clip Introducer
U1-A338



Fork Guide
U1-A336



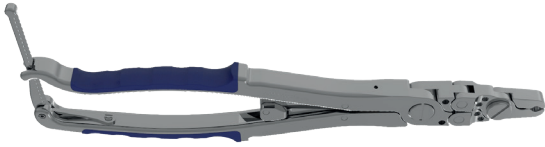
Rod Approximator
U1-A370



Rod Pusher
U1-A224



Long T20 Screwdriver
U1-A415



Rod Gripper
U1-A311



Open Rod Rotation Wrench
U1-A344N1



Dual Axis Compressor
U1-A343



Distractor
U1-A342



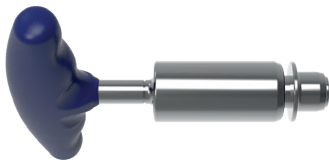
Right Coronal Bender - U1-A326
Left Coronal Bender - U1-A327



Right Sagittal Bender - U1-A328
Left Sagittal Bender - U1-A329



Counter Torque for Clip
U1-A420-4



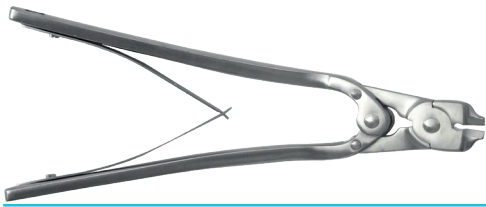
Torque Limiting Handle
U1-A418T



T-20 Shaft
U1-A416



Clip Guard
U1-A421



Clip Remover
U1-A422



Setscrew Inserter
U1-A215



Cannulated Trifine for Ilio Sacral Fixation
U1-A125



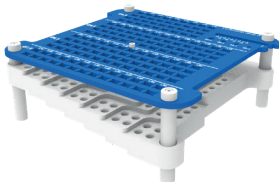
Pin for Ilio Sacral Fixation
U1-A126



**Ilio Sacral 5mm Hex Cannulated
Screwdriver**
U1-A232



**Ilio Sacral 6.5mm inner hex
screwdriver**
U1-A413



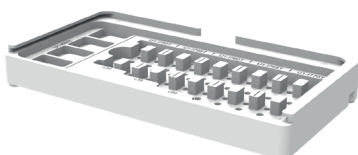
PLUS Screws Rack
U1-RACKVIS1



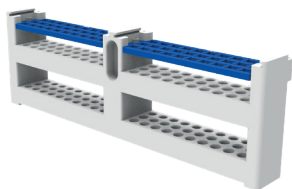
Hooks Rack
U1-RACKHOOK



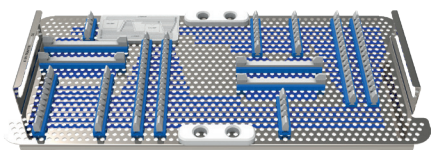
Clips Rack
U1-RACKCLIP



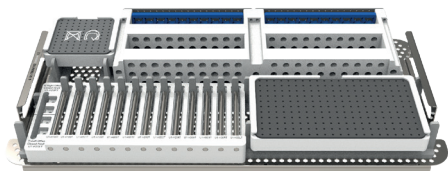
Ilios Sacral Connectors Rack
U1-RACKIS



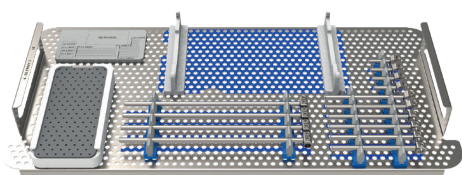
PLUS Big Screws Rack
U1-RACKVIS2



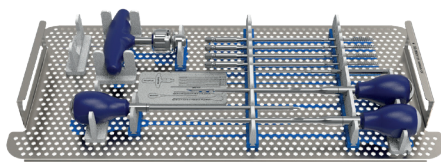
Tray 8 PLUS
U1-TRAY118



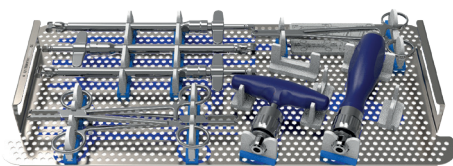
Tray 9 PLUS
U1-TRAY119



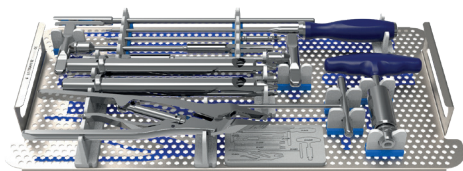
Connectors Tray
SD-TRAY113



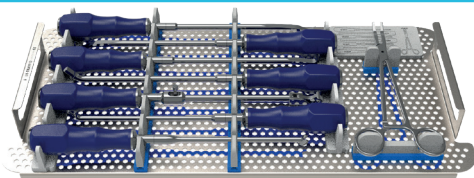
Pedicular Preparation Tray
SD-TRAY111



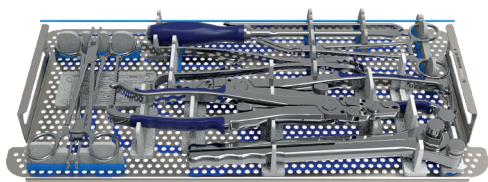
Tray 1 PLUS
U1-TRAY111



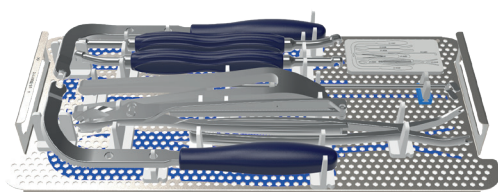
Tray 2 PLUS
U1-TRAY112



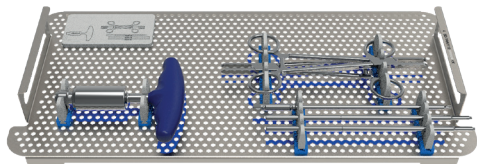
Tray 3 PLUS
U1-TRAY113



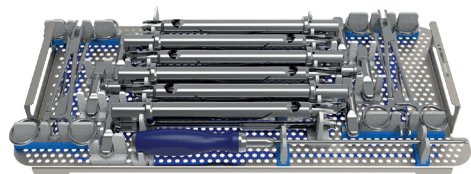
Tray 4 PLUS
U1-TRAY114



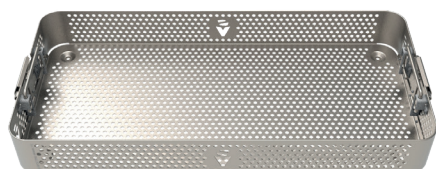
Tray 5 PLUS
U1-TRAY115



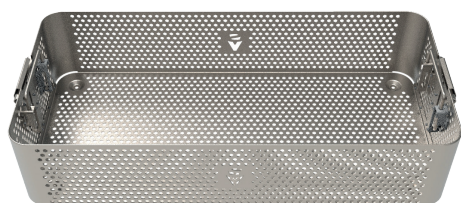
Crosslink Tray
SD-TRAY112



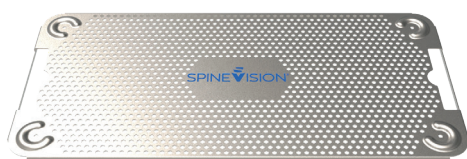
Tray 7 PLUS
U1-TRAY117



SV Common Base DIN 1/1 H68 mm
SD-BASE1168



SV Common Base DIN 1/1 H117 mm
SD-BASE11117



SV Common Lid DIN 1/1
SD-LID11

SCREWS RANGES

Ø/L	20	25	30	35	40	45	50	55	60	70	80	90
4,5	✓	✓	✓	✓	✓	✓						
5,5	✓	✓	✓	✓	✓	✓	✓					
6,5		✓	✓	✓	✓	✓	✓	✓	✓			
7,5		✓	✓	✓	✓	✓	✓	✓	✓	✓ *	✓ *	✓ *
8,5				✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *

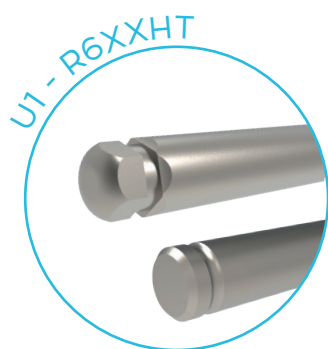
* Only Multiaxial screws



U1-MXXXT : Multiaxial screw
 U1-SXXXT : Monoaxial screw

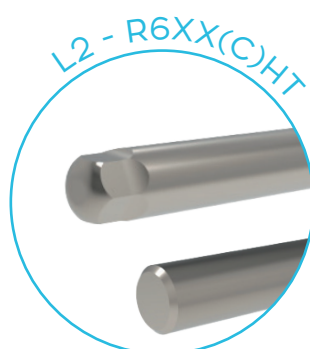
X = Diameter
 XX = Length

RODS RANGES



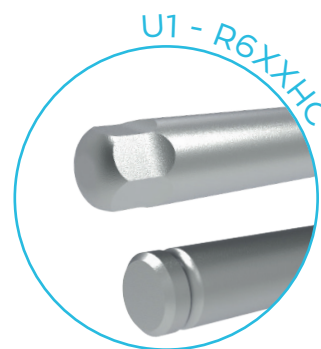
Material : T40
 Malleable rods

SIZE : 420 & 600 mm



Material : TiA6V
 Rigid rods

40 --> 100 in 10 mm inc
 straight & prebent
 250, 420 & 600 mm
 straight only



Material : CoCr
 Really stiff rods

40 --> 90 in 10 mm inc
 250, 420 & 600 mm

U1-R6XXHT

L2-R6XXHT

L2-R6XXCHT XX = Length

U1-R6XXHC

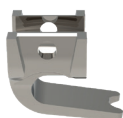
Examples : Length 420 = R642H / Length 40 = R604H

HOOKS RANGE



Pedicle Hook
U1-H100T

Angled Laminar Hook
U1-H202T



Small Pedicle Hook
U1-H101T

Tall Body Hook
U1-H203T



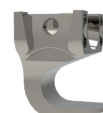
Laminar Hook
U1-H200T

Small Laminar Hook
U1-H204T



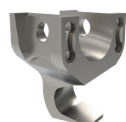
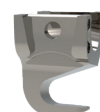
Narrow Laminar Hook
U1-H201T

Oblique Laminar Hook
U1-H300T



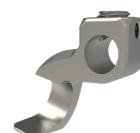
Right Offset Hook
U1-H30RT

Narrow Oblique Laminar Hook
U1-H301T



Left Offset Hook
U1-H30LT

Left Closed offset hook
U1-H20LT



Right Closed offset hook
U1-H20RT

CLIPS

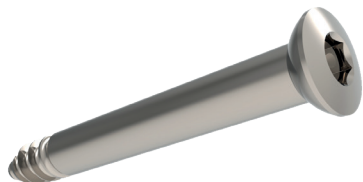


CLIPS : U1-L100T

CONNECTORS RANGE



Ilio Sacral Connector
U1-I600T



Ilio Sacral Screws
U1-I7XXT
XX = Length from 50 --> 70 mm



Lateral Connector
U1-L400T



Long Lateral Connector
U1-L400LT



Pelvis Connector
U1-L403T



Closed Lateral Connector
U1-L404T

DOMINOS RANGE



Dual connector
U1-L301T

Small dual connector
U1-L303T



Axial connector
U1-L302T

Small open dual connector
U1-L310T



NOTES

NOTES

NOTES

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SPINEVISION SAS
3 Rue de la Renaissance
92160 ANTONY - FRANCE
Tél : +33 1 53 33 25 25

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See package insert
for labeling limitation.

Non contractual document
GU1-ST_11EN

The Plus system is made of medical devices. Please refer to the instructions for use or, if applicable, the specific labelling of each device for more information.