stryker®

Solis Cervical Cage
Surgical Technique

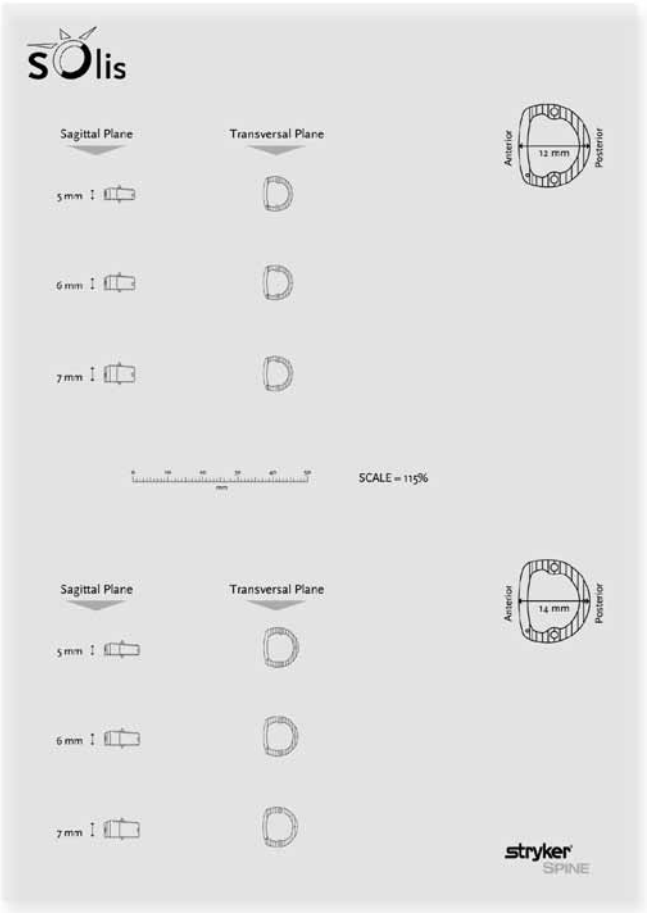
- Original design
- Precise instrument set

Solis

Cervical Cage System Surgical Technique

10 Steps

Cervical Cage System Surgical Technique



Step -1-

Preoperative Planning and X-Ray Analysis

Conventional x-ray templates are available with the Solis Cervical Cage System to assist in the selection of implant sizes.

Overlay the x-ray template on 15% magnification front and lateral x-ray films to determine the appropriate implant size (x-ray yield in average a 15% magnification).

1 - Properly sized implants should fit within the confines of the anterior cortex, posterior cortex and uncovertebral joints on the front x-ray.

2 - Overlay the templates on the lateral x-ray. Measure the height of the adjacent non-degenerative discs until a cervical cage template that matches is identified.

The identified size gives an estimation of the Solis cage that should be used at the degenerated level.

Step -2-

Patient Preparation

Place the patient in a supine position, stabilised in a head holder. The patient's head higher than his feet to reduce the venous pressure. A slightly rotated and extended head position to the other side gives a better surgical approach. Too much rotation though gives too much tension of the sternocleidomastoideus muscle.

Prepare and drape the patient in the usual manner for anterior cervical decompression and fusion surgery. The iliac crest on the same side may be prepared.

Use interoperative radiographic imaging to identify the affected discs and make an incision that optimises the exposure of the procedure.

Step -3-

Discectomy and decompression

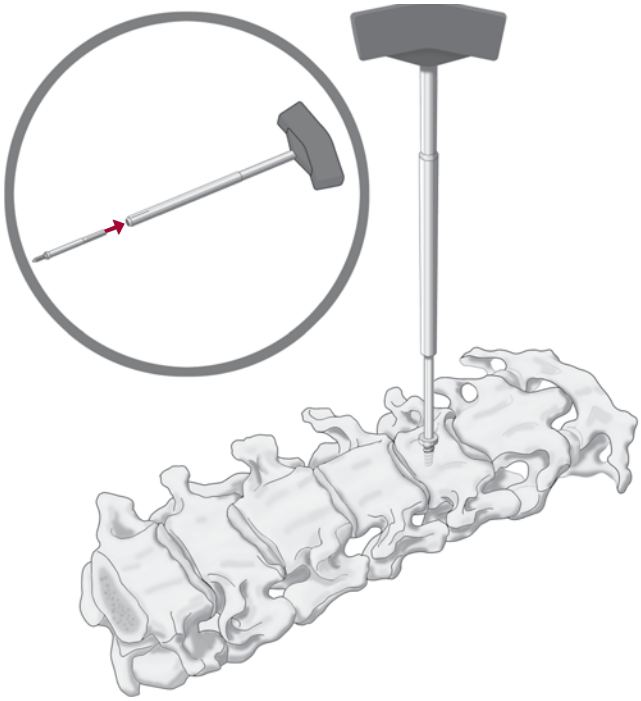
The discectomy is complete when all disc material has been removed.

Care should be taken to remove all the bone that causes the compression of the nervous structures.

Step -4-

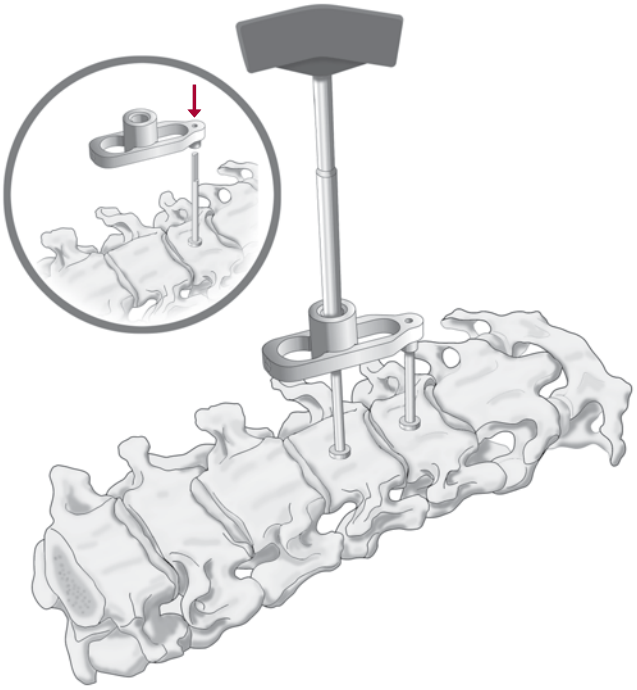
Distraction

a - With the Pin Driver first insert one of the distraction pins in the cervical vertebrae above or beneath the disc to be operated.



b - Place the Pin Guide on the pin and insert the second distraction pin through the sleeve.

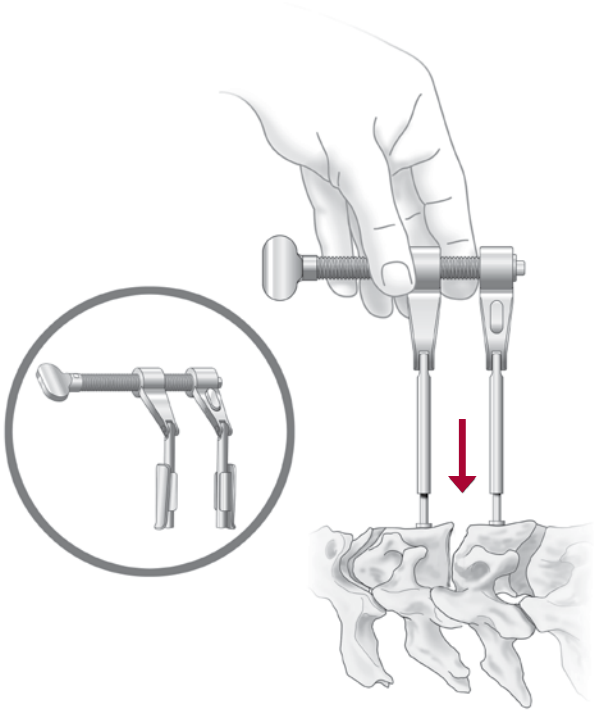
The Pin Guide allows the placing of the two pins in a parallel position.



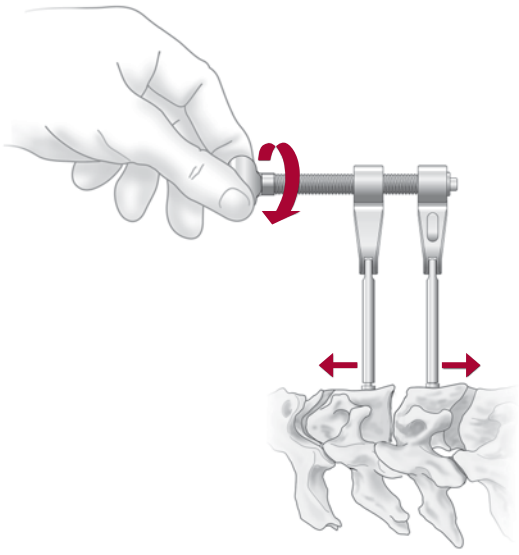
Step -4-

c - Place both arms of the Distractor on the pins.

NB: If required the Solis cage system provides two Distractor Blades.



d - Perform a complete anterior cervical decompression after turning forward the wing nut of the Distractor.



Step -5-

Selection

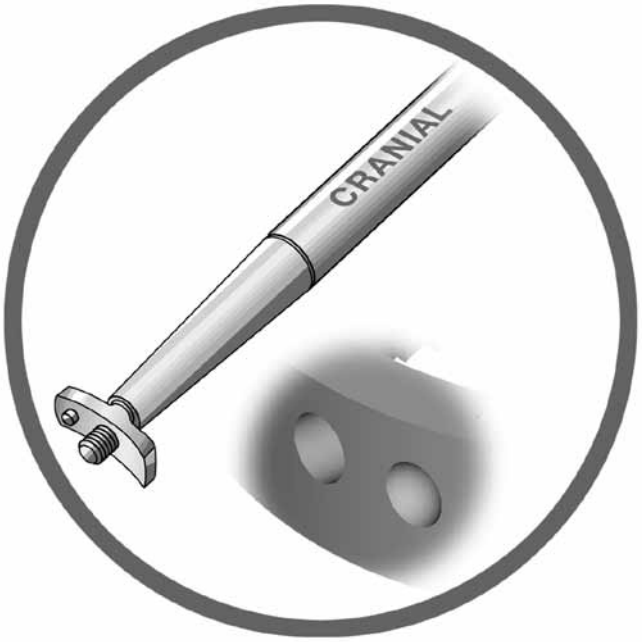
a - Connect the Trial Cage to the Implant Holder by turning the handle.

In order to prevent the cage mispositioning during the insertion,

- the Implant Holder features an etching that indicates the cranial position,

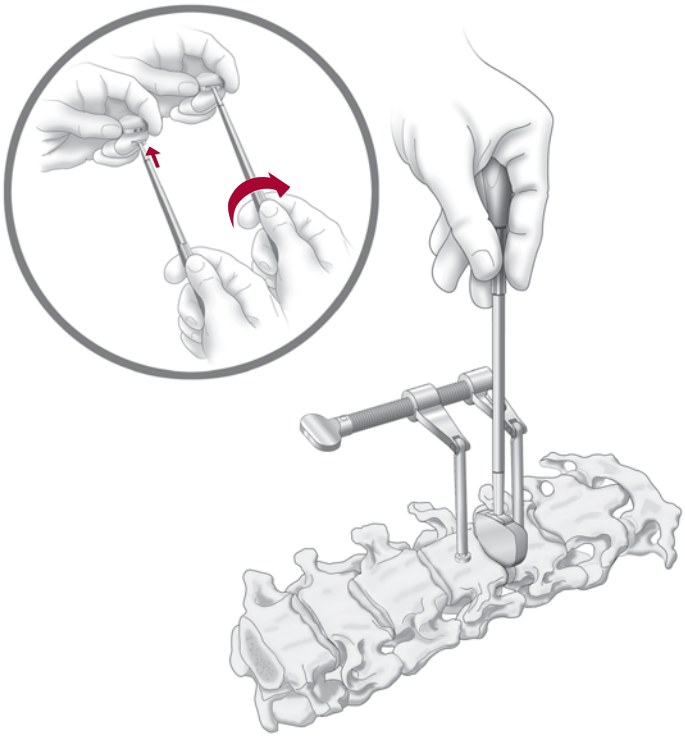
- the Trials as well as the final implant have a lateral hole that corresponds to the ball on the tip of the Implant Holder.

N B: The size of the Trials corresponds to the Solis cage without the spikes.



b - The Trial Cage is then placed in the intra-discal space. Sufficient compression will occur on the inserted trial, when trialing the correct size.
If sufficient compression does not occur, try the next larger size trial cage.

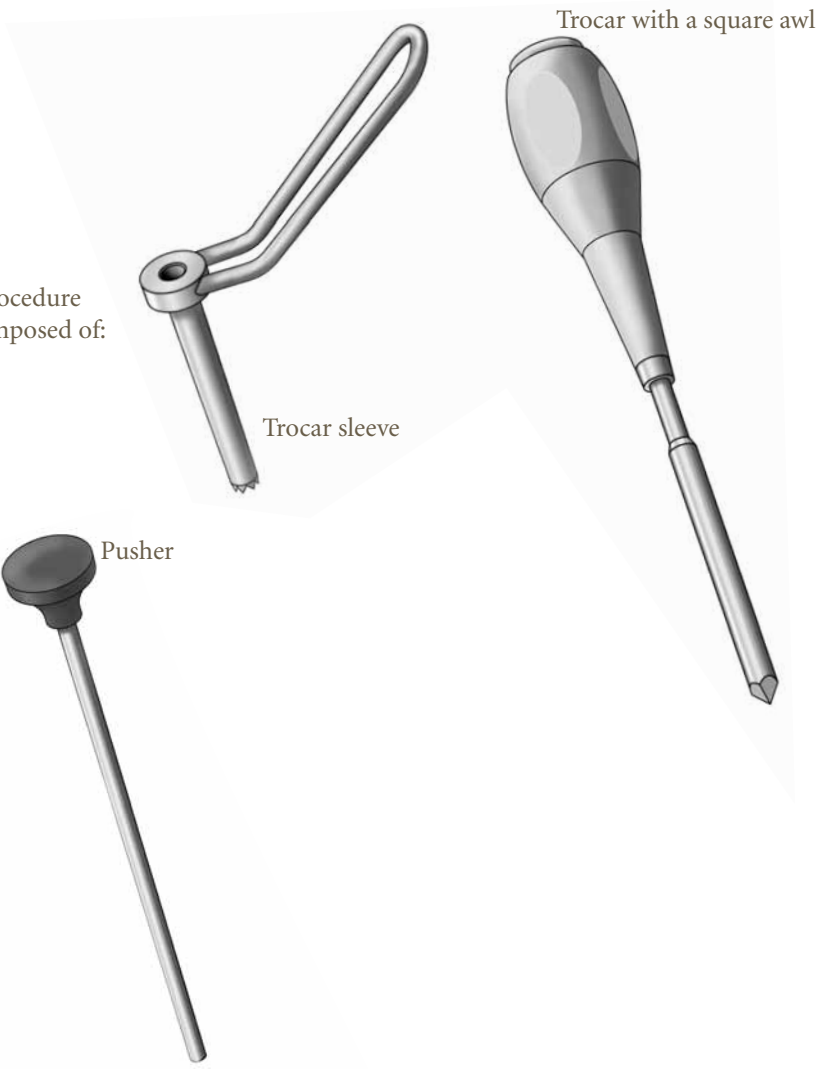
Consult your preimplantation measurements and compare these results with your operative findings.

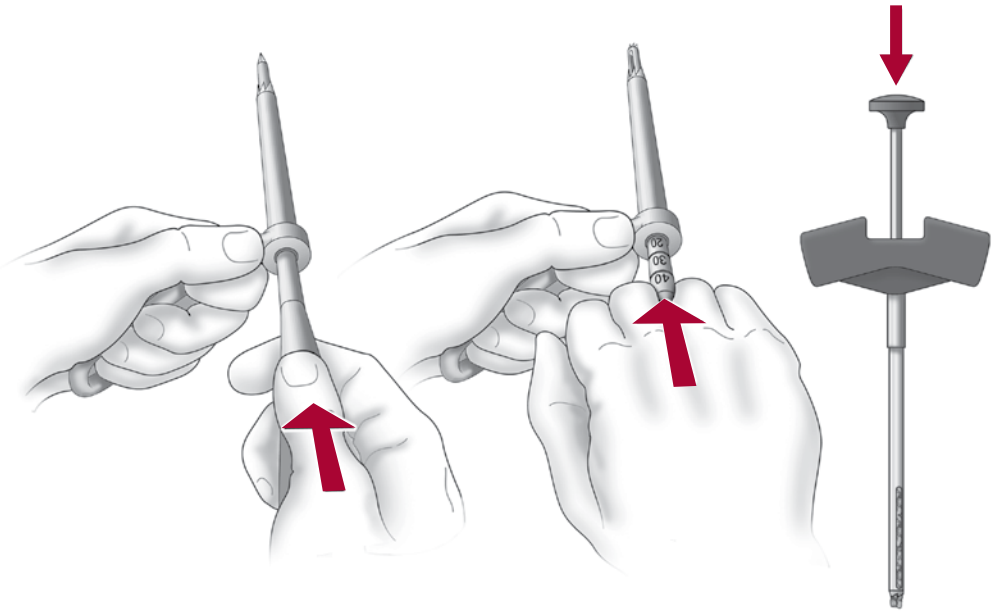


Step -6-

Solis Bonegraft Harvesting Set Option

a - To harvest bonegraft as a minimally invasive procedure a Bonegraft Harvesting Set is provided and composed of:

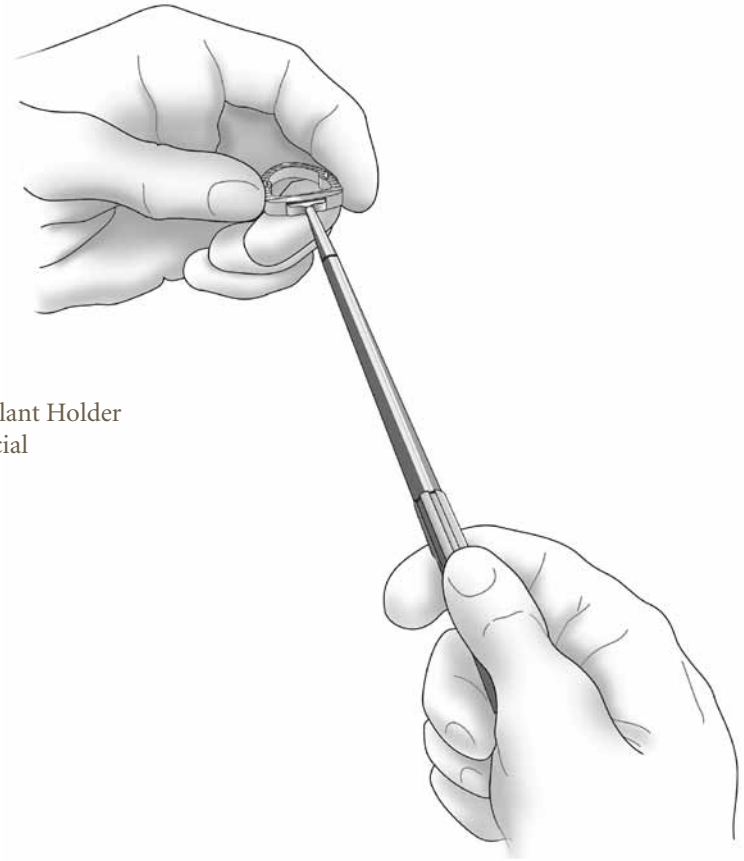


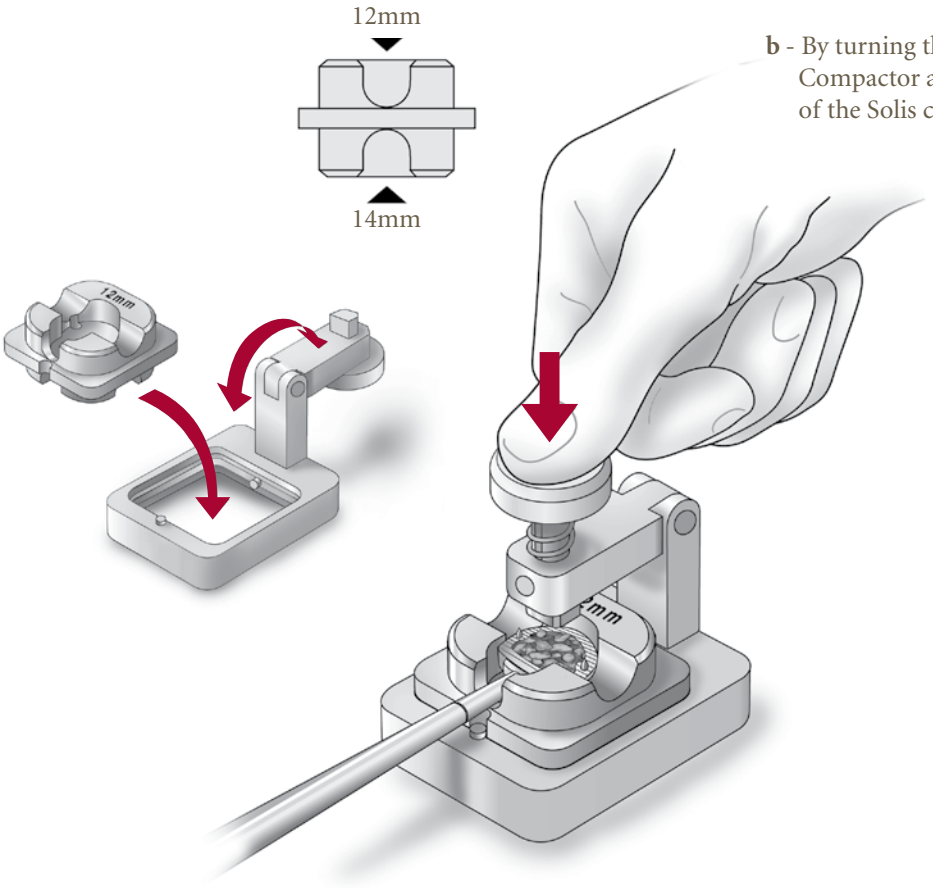


Step -7-

Bonegraft preparation

a - After connecting the Solis Cage to the Implant Holder as already done with the trials, use the special Bonegraft Compactor.



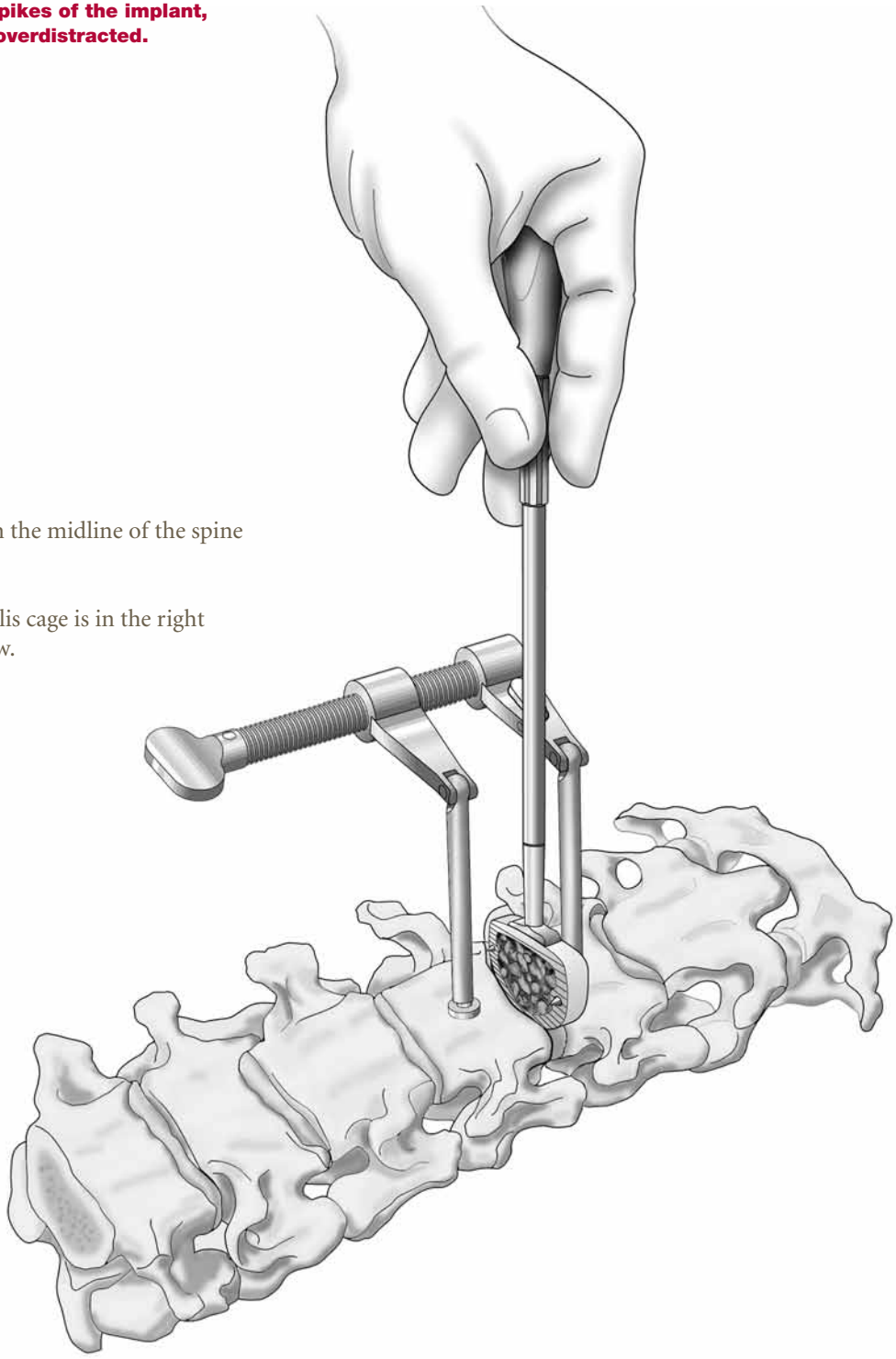


b - By turning the detachable base, the Bonegraft Compactor allows the placing of the two depths of the Solis cage: 12 and 14 mm.

Step -8-

Overdistraction

NB : In order to accomodate the spikes of the implant, the disc space should be slightly overdistracted.



Step -9-

Positioning

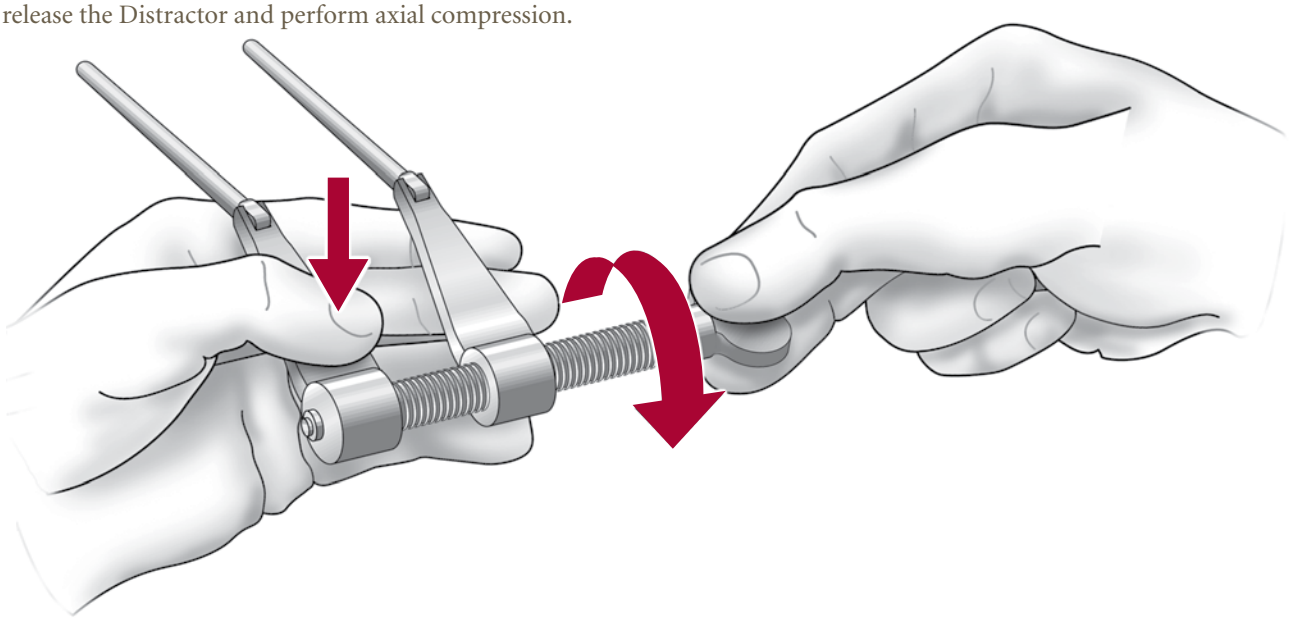
Insert the cage into the disc space in the midline of the spine and release the Implant Holder.

Take a lateral x-ray to ensure the Solis cage is in the right position in the front and lateral view.

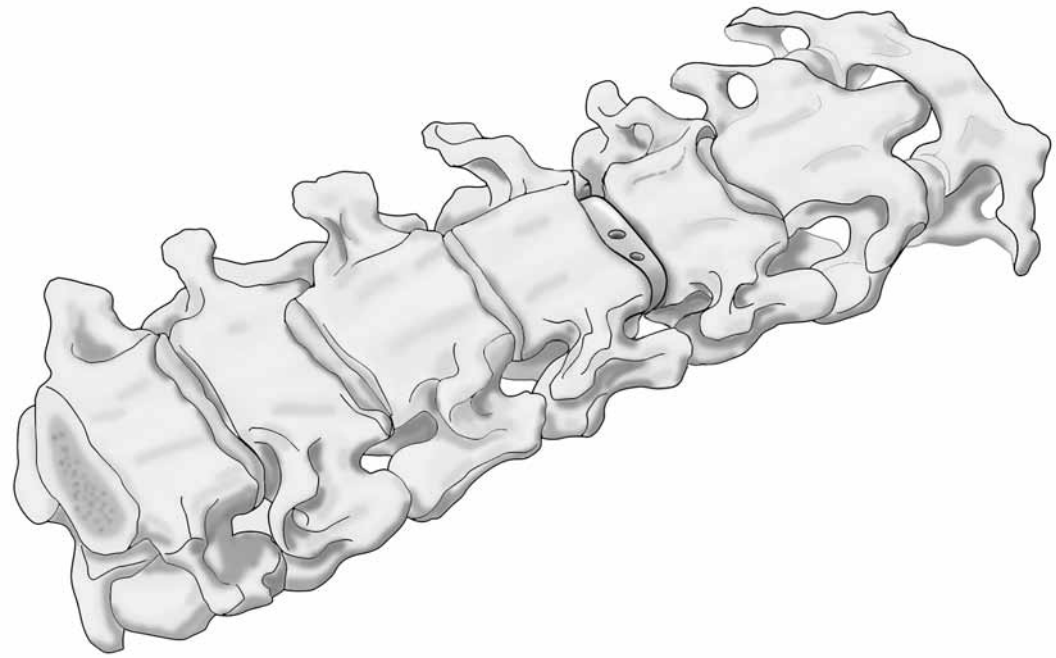
Step -10-

Axial Compression

Push on the button and turn the wing nut backward to release the Distractor and perform axial compression.



Remove the Solis cage distraction device by removing the Distractor and then the pins with the Pin Driver.



Tribone 80

Synthetic Bone Substitute

Tribone 80 permits the Solis cervical cage users to promote bone fusion while optimizing surgery time, and potentially improving the post-operative outcomes.

Designed to optimise Operative Time:

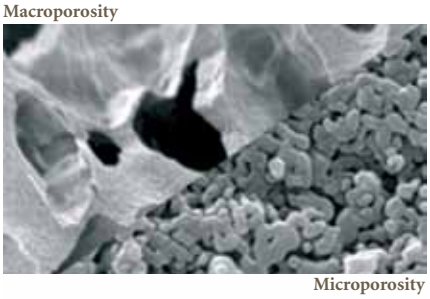
- **Tribone 80 insert is "ready to use"**. Delivered sterile and without any additional instrumentation needed, each Solis cage has a corresponding insert.

- Using a **Tribone 80 insert specifically adapted to the Solis cage** cancels the need for an autograft bone harvesting procedure.

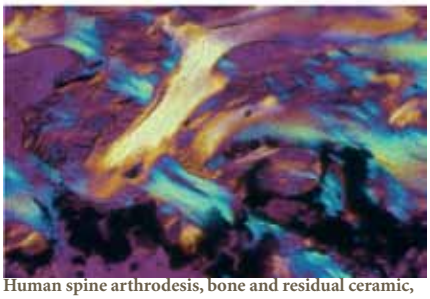
- **Tribone 80's shape** has been designed to fit into the Solis cage: In conjunction with the "butterfly wings" shape to respect the internal part of the cage, 2 different markers (superior and anterior) have been added for better handling. A "cone shape" to ensure good positioning and a pressfit effect promotes ease of use.

Tribone 80 insert

Macroporosity



Microporosity



Human spine arthrodesis, bone and residual ceramic, Haversian chanal , 2 years after implantation

Designed to promote bone fusion:

- Tribone 80's composition is designed to have **the greatest effect on bone formation.** It is a biphasic calcium phosphate composed of 80% of Tricalcium Phosphate (highest resorption rate) and 20% of Hydroxyapatite (closest composition to osseous mineral phase) which allows a controlled bioactivity (progressive dissolution).[1,2]

- Thanks to its **micro and macroporous structure,** Tribone 80 balances resorption and bone substitution. While microporosity allows the diffusion of biological fluids as a basis for osteogenic stimulation, the macroporosity promotes a deep invasion of osteogenic cells by osteoconduction.

- The use of a biphasic calcium phosphate has shown **a fusion rate comparable to autograft (with the Solis cage)**. The Solis cage, with an elasticity modulous close to spongy bone and its unique anatomical shape allows fusion to occur.[3]

Designed to improve post-operative-outcomes:

By avoiding a bone harvesting procedure, the use of Tribone 80 in combination with Solis cage excludes comorbidities associated with it. This may lead to a **reduction in blood loss, a shorter hospital stay and eradicates donor sites complications** such as pain.

1 Product to optimise operative time...

2 Components to promote bone fusion...

3 Designed to improve post operative outcomes...

1. S.Yamada, D. Heymann, J.-M Bouler, G. Daculsi. Osteoclastic resorption of biphasic calcium phosphate ceramic in vitro. J Biomed Mater Res, 37,346-352,1997.

2. G. Daculsi, R.Zl LeGeros, E.Nery and K. Lynch, B. Kerebel. Transformation of biphasic calcium phosphate ceramics in vivo: Ultrastructural and physicochemical charachterization. Journal of Biomedical Materials Research, Vol. 23, 883-894 (1989)

3. Der-Yang Cho, MD, Wuen-Yen Lee, MD, Pon-Chun Sheu, MD, Chun-Chung Chen, MD. Cage containing a biphasic calcium phosphate ceramic (Triosite) for the treatment of cervical spondylosis. Surgical Neurology 63 (2005) 497-504

List of implants

... And instruments

Solis Implants

Item #	Reference	Size
6741204	Solis Cervical Cage	12/4
6741205	Solis Cervical Cage	12/5
6741206	Solis Cervical Cage	12/6
6741207	Solis Cervical Cage	12/7
6741208	Solis Cervical Cage	12/8
6741209	Solis Cervical Cage	12/9

Item #	Reference	Size
6741404	Solis Cervical Cage	14/4
6741405	Solis Cervical Cage	14/5
6741406	Solis Cervical Cage	14/6
6741407	Solis Cervical Cage	14/7
6741408	Solis Cervical Cage	14/8
6741409	Solis Cervical Cage	14/9

Tribone 80 Implants

Item #	Reference	Size
T806741204	Insert for Solis Cage	12/4
T806741205	Insert for Solis Cage	12/5
T806741206	Insert for Solis Cage	12/6
T806741207	Insert for Solis Cage	12/7
T806741208	Insert for Solis Cage	12/8
T806741209	Insert for Solis Cage	12/9

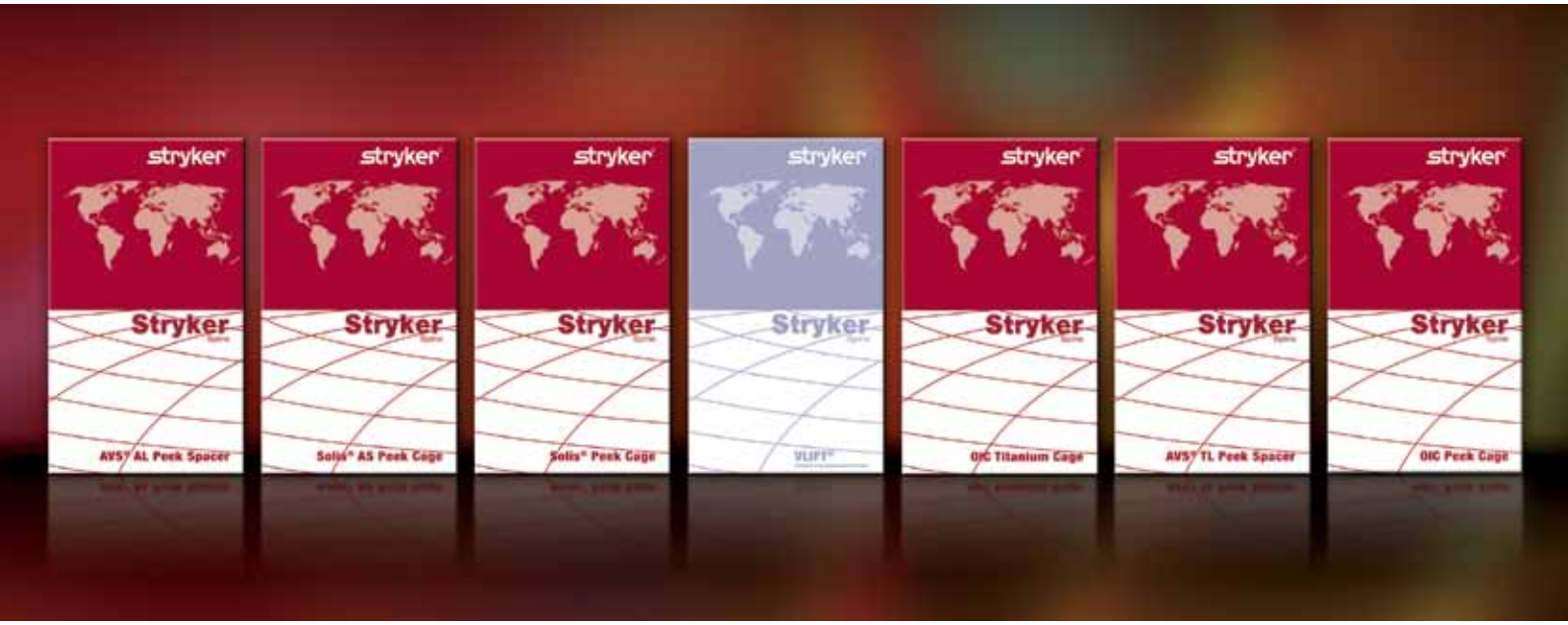
Item #	Reference	Size
T806741404	Insert for Solis Cage	14/4
T806741405	Insert for Solis Cage	14/5
T806741406	Insert for Solis Cage	14/6
T806741407	Insert for Solis Cage	14/7
T806741408	Insert for Solis Cage	14/8
T806741409	Insert for Solis Cage	14/9

Trials

Item #	Reference	Size
8741204	Trial Cage	12/4
8741205	Trial Cage	12/5
8741206	Trial Cage	12/6
8741207	Trial Cage	12/7
8741208	Trial Cage	12/8
8741209	Trial Cage	12/9

Item #	Reference	Size
8741404	Trial Cage	14/4
8741405	Trial Cage	14/5
8741406	Trial Cage	14/6
8741407	Trial Cage	14/7
8741408	Trial Cage	14/8
8741409	Trial Cage	14/9

Solis Sterile Packaging



Stryker Spine sterile packaging offers:

- Implants individually packaged in double barrier blister packs
- Gamma sterilised
- Easy to read labels for quick identification of product and size
- Uniformly shaped boxes for ease of stacking and storing
- Quick pull tab for easy opening

Giving you and your hospital:

- Conveniently prepackaged, presterilised individual implants
- Facilitates lot traceability from manufacturing to patient implantation
- Reduced potential for lost inventory due to small size of some implants
- Reduction in the total number of trays needed in the operating room

References

Solis Sterile Implants

Item #	Reference	Size
6741204S	Sterile Solis Cervical Cage	12/4
6741205S	Sterile Solis Cervical Cage	12/5
6741206S	Sterile Solis Cervical Cage	12/6
6741207S	Sterile Solis Cervical Cage	12/7
6741208S	Sterile Solis Cervical Cage	12/8
6741209S	Sterile Solis Cervical Cage	12/9

Item #	Reference	Size
6741404S	Sterile Solis Cervical Cage	14/4
6741405S	Sterile Solis Cervical Cage	14/5
6741406S	Sterile Solis Cervical Cage	14/6
6741407S	Sterile Solis Cervical Cage	14/7
6741408S	Sterile Solis Cervical Cage	14/8
6741409S	Sterile Solis Cervical Cage	14/9

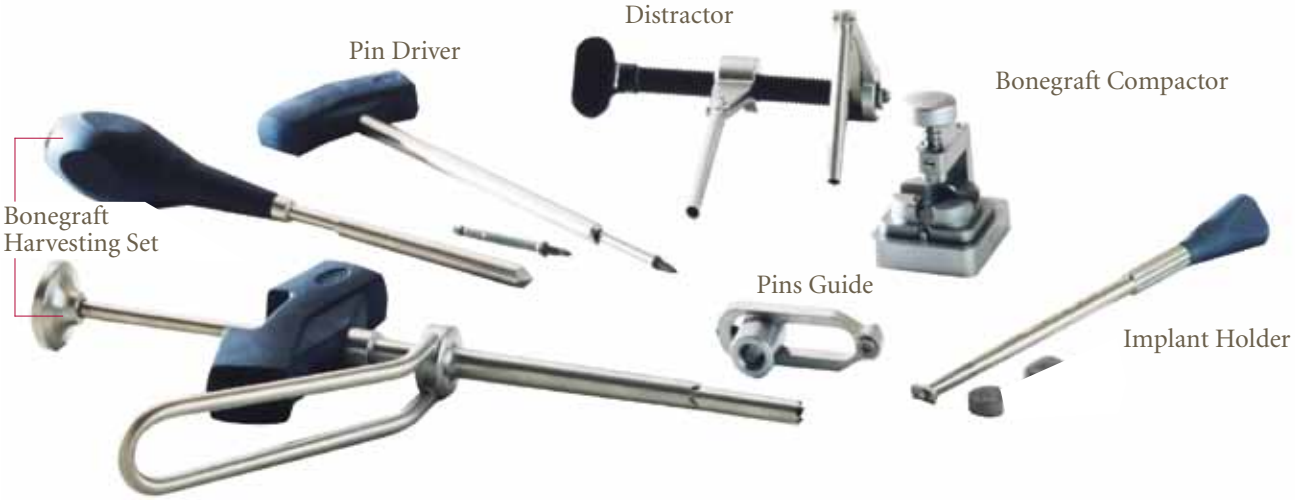
Solis

Instruments

Instruments

Item #	Reference
874011	Distractor
874002	Distraction pin
874003	Bonegraft Compactor
874004	Implant Holder
874005	Pin Driver
874006	Bonegraft Harvesting Set
874007	Pins Guide
874008	Distractor Blade

Distractor Blade



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