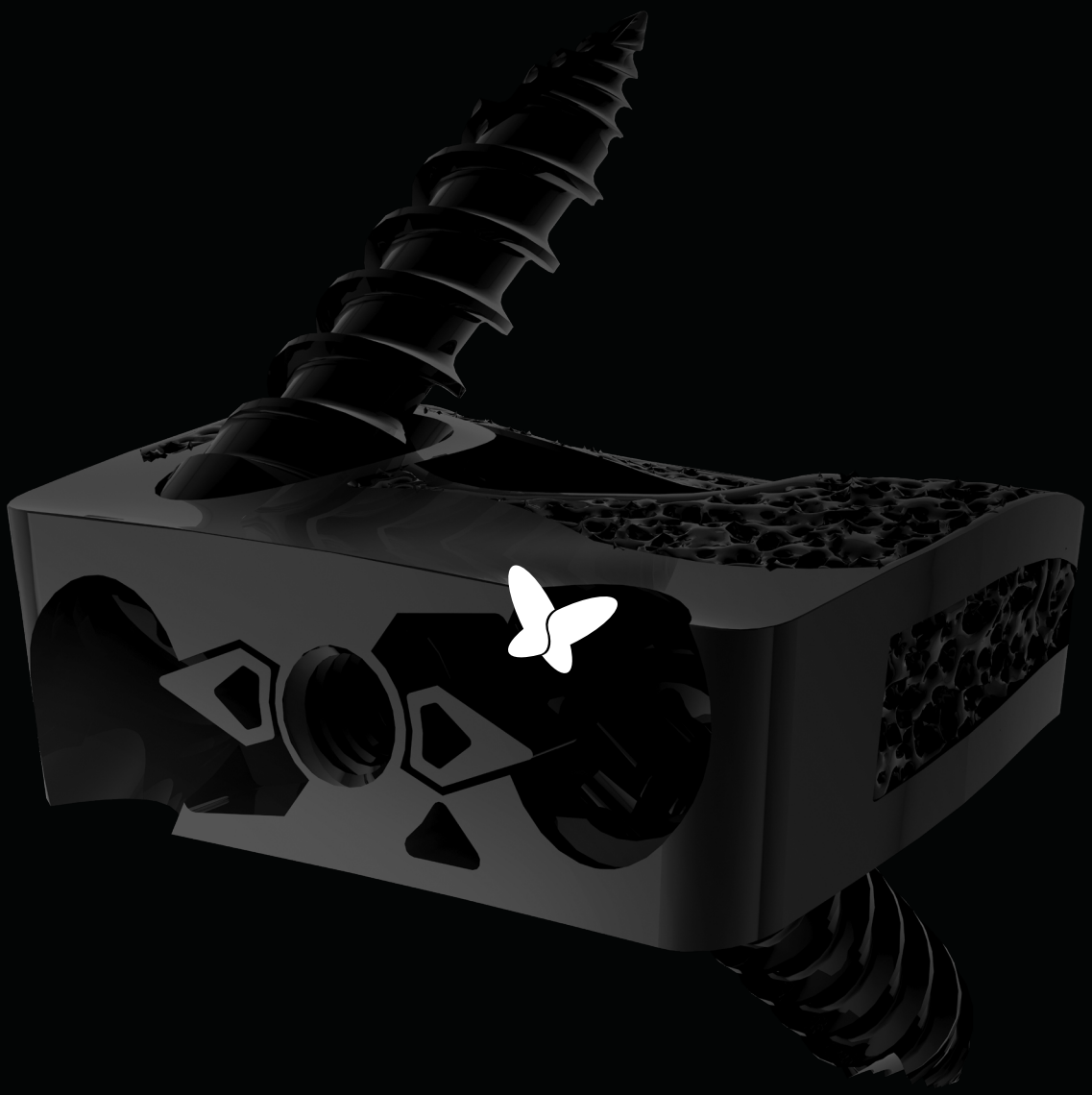

SCARLET® AC-Ti

SECURED ANTERIOR CERVICAL CAGE

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CONCEPT AND DESIGN

Building on the success and experience acquired with our first SCARLET® AC-T for over 10 years, Spineart developed a new 3D printed Titanium secured anterior cervical cage, featuring the Ti-LIFE Technology, a state-of-the-art porous, interconnected structure replicating the trabecular bone geometry.

With each product development, Spineart is relentlessly driven by the same philosophy: Quality, Innovation and Simplicity.

AT A GLANCE

UNIQUE ANATOMICAL SHAPE

ZERO PROFILE

Ti-LIFE TECHNOLOGY

INTEGRATED ANTI-BACKOUT MECHANISM

INDICATIONS

SCARLET® AC-Ti cages are indicated for use in skeletally mature patients with degenerative disc disease (defined as neck pain of discogenic origin with degeneration of the disc confirmed by history and radiographic studies) of the cervical spine. Patients should have at least six (6) weeks of non-operative treatment prior to treatment with an intervertebral cage. SCARLET® AC-Ti cages are intended to be used at one or two contiguous levels from C2-T1 to facilitate intervertebral body fusion with autogenous bone graft and/or allogenic bone graft comprised of cancellous and/or corticocancellous bone graft. When used with two bone screws, the SCARLET® AC-Ti Secured Anterior Cervical Cage is intended to be used as a standalone system and requires no additional supplementary fixation systems.

When used with two anchors or without two bone screws, the SCARLET® AC-Ti cages are to be used with supplemental fixation which has been cleared by the FDA for use in the cervical spine.

The SCARLET® AC-Ti hyperlordotic (12° lordosis) cages are to be used with bone screws and/or anchors and additional supplemental fixation system that has been cleared by the FDA for use in the cervical spine.

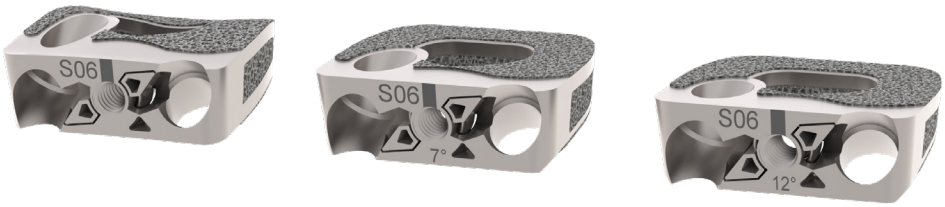
CONTRAINDICATIONS

Include but not limited to:

- Mental illness.
- Infection.
- Severely damaged bone structures that could prevent stable implantation of the cage.
- Neuromuscular or vascular disorders or illness.
- Inadequate activity.
- Pregnancy.
- Bone tumor in the region of implant.

Please refer to the SCARLET® AC-Ti Instruction for Use for complete device description, indications, contraindications, precautions, and warnings.

IMPLANTS



ANATOMIC CAGE

SMALL FOOTPRINT: 12X15MM		LARGE FOOTPRINT: 14X17MM		EXTRA LARGE FOOTPRINT: 16X18MM	
HEIGHT	**REFERENCE**	**HEIGHT**	**REFERENCE**	**HEIGHT**	**REFERENCE**
5mm	SCA-TA SM 05-S	5mm	SCA-TA LA 05-S	• 5mm	SCA-TA XL 05-S
6mm	SCA-TA SM 06-S	6mm	SCA-TA LA 06-S	• 6mm	SCA-TA XL 06-S
7mm	SCA-TA SM 07-S	7mm	SCA-TA LA 07-S	• 7mm	SCA-TA XL 07-S
8mm	SCA-TA SM 08-S	8mm	SCA-TA LA 08-S	• 8mm	SCA-TA XL 08-S
• 9mm	SCA-TA SM 09-S	• 9mm	SCA-TA LA 09-S	• 9mm	SCA-TA XL 09-S
• 10mm	SCA-TA SM 10-S	• 10mm	SCA-TA LA 10-S	• 10mm	SCA-TA XL 10-S

LORDOTIC CAGE

SMALL FOOTPRINT: 12X15MM		LARGE FOOTPRINT: 14X17MM		EXTRA LARGE FOOTPRINT: 16X18MM	
HEIGHT	**REFERENCE**	**HEIGHT**	**REFERENCE**	**HEIGHT**	**REFERENCE**
5mm	SCA-TL SM 05-S	5mm	SCA-TL LA 05-S	• 5mm	SCA-TL XL 05-S
6mm	SCA-TL SM 06-S	6mm	SCA-TL LA 06-S	• 6mm	SCA-TL XL 06-S
7mm	SCA-TL SM 07-S	7mm	SCA-TL LA 07-S	• 7mm	SCA-TL XL 07-S
8mm	SCA-TL SM 08-S	8mm	SCA-TL LA 08-S	• 8mm	SCA-TL XL 08-S
• 9mm	SCA-TL SM 09-S	• 9mm	SCA-TL LA 09-S	• 9mm	SCA-TL XL 09-S
• 10mm	SCA-TL SM 10-S	• 10mm	SCA-TL LA 10-S	• 10mm	SCA-TL XL 10-S

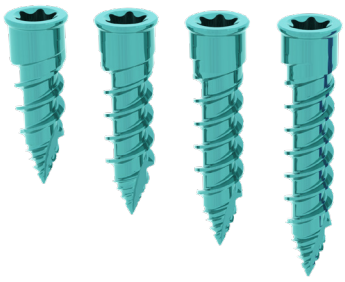
HYPERLORDOTIC CAGE

SMALL FOOTPRINT: 12X15MM		LARGE FOOTPRINT: 14X17MM		EXTRA LARGE FOOTPRINT: 16X18MM	
HEIGHT	**REFERENCE**	**HEIGHT**	**REFERENCE**	**HEIGHT**	**REFERENCE**
• 6mm	SCA-TH SM 06-S	• 6mm	SCA-TH LA 06-S	• 6mm	SCA-TH XL 06-S
• 7mm	SCA-TH SM 07-S	• 7mm	SCA-TH LA 07-S	• 7mm	SCA-TH XL 07-S
• 8mm	SCA-TH SM 08-S	• 8mm	SCA-TH LA 08-S	• 8mm	SCA-TH XL 08-S
• 9mm	SCA-TH SM 09-S	• 9mm	SCA-TH LA 09-S	• 9mm	SCA-TH XL 09-S
• 10mm	SCA-TH SM 10-S	• 10mm	SCA-TH LA 10-S	• 10mm	SCA-TH XL 10-S
• 11mm	SCA-TH SM 11-S	• 11mm	SCA-TH LA 11-S	• 11mm	SCA-TH XL 11-S

• : OPTIONAL

IMPLANTS

SCREWS



L 12mm L 14mm L 16mm L 18mm

Ø 3.20mm Ø 3,70mm

CERVICAL SCREW Ø3.2MM

LENGTH	REFERENCE
12mm	SCA-TS 32 12-S
14mm	SCA-TS 32 14-S
16mm	SCA-TS 32 16-S
18mm	SCA-TS 32 18-S

CERVICAL SCREW Ø3.7MM

LENGTH	REFERENCE
12mm	SCA-TS 37 12-S
14mm	SCA-TS 37 14-S
16mm	SCA-TS 37 16-S
18mm	SCA-TS 37 18-S

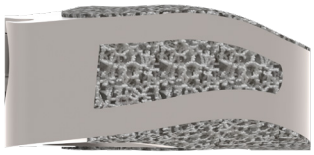
ANCHORS

CERVICAL ANCHOR Ø3.7MM

LENGTH	REFERENCE
10mm	SCA-TA 37 10-S
12mm	SCA-TA 37 12-S
14mm	SCA-TA 37 14-S

TECHNICAL FEATURES

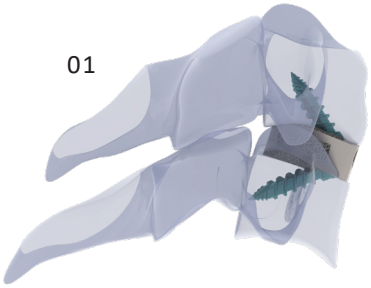
UNIQUE ANATOMICAL SHAPE



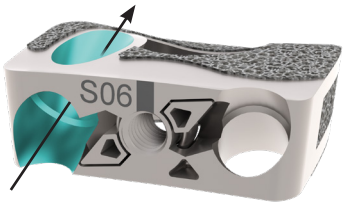
The anatomical shape of the cage provides optimal fit and support between endplates.
This unique profile was developed after in-depth analyses of cervical vertebrae digital models.

ZERO PROFILE & SCREW TRAJECTORY

01



02



01. The screw and anchor heads are completely integrated in the cage. Zero-profile, in case of 2 screws configuration may reduce potential risks associated with dysphagia.

02. The trajectory of the screw is guided by the implant, allowing precise targeted insertion.

TECHNICAL FEATURES

Ti-LIFE TECHNOLOGY

Ti-LIFE technology structures have an average pore diameter and overall porosity similar to trabecular bone, which may enable cell colonization and promote bone ingrowth[1,2,3].

This technology is based on an enhanced algorithm for additive manufacturing commonly known as 3D printing.

INTEGRATED ANTI-BACKOUT MECHANISM

CAM LOCK OPEN

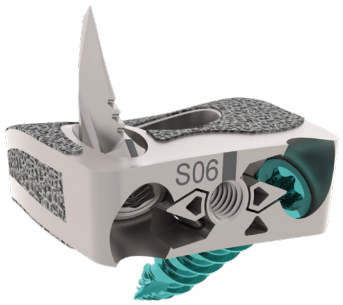
CAM LOCK CLOSED

The zero profile one-step locking mechanism
with integrated cam lock prevents migration of screws or anchors.

1. In Vivo performance of selective electron beam-melted Ti6Al4V structures Ponader, S et al.,2010
2. Evaluation of biological properties of electron beam melted Ti6Al4V implant with biomimetic coating in vitro and in vivo. Li, X et al.,2012
3. Porous titanium-6 aluminium-4 vanadium cage has better osseointegration and less micromotion than a poly-ether-etherketone cage in sheep vertebral fusion. Wu, S.-H.,et al.,2013

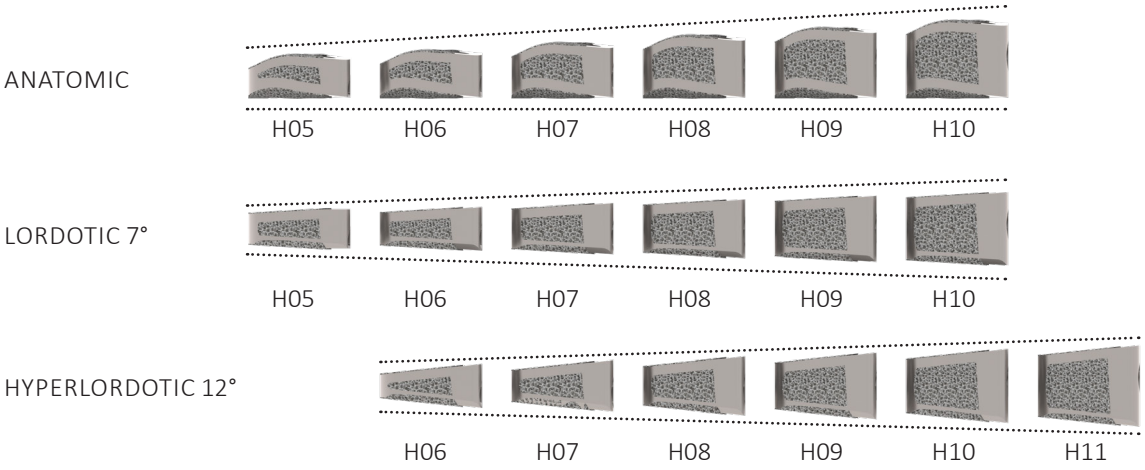
TECHNICAL FEATURES

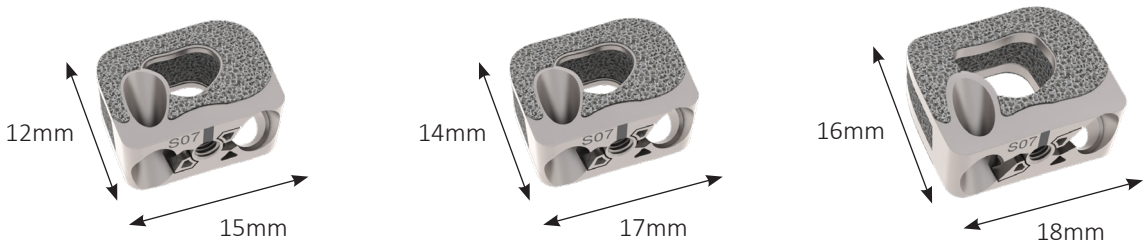
FIXATION OPTIONS → ANCHORS AND/OR SCREWS



SCARLET® AC-Ti has two fixation options: Screws and/or Anchors (see indication for more information p5).

54 CAGE SIZES



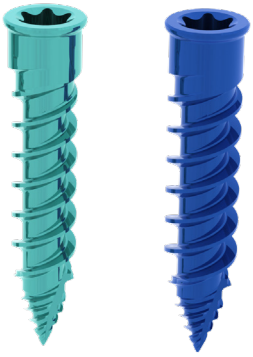


For an optimal fit, SCARLET® AC-Ti is offered in 6 heights, 3 footprints and 3 profiles.

TECHNICAL FEATURES

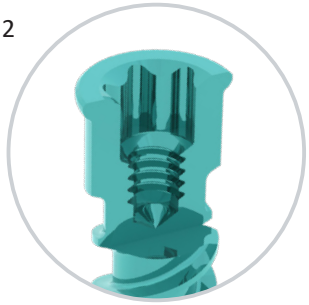
SELF-DRILLING SCREWS

01



Ø 3.20mm Ø 3,70mm

02



01. The self-drilling screws feature a sharp threaded tip.
Screws are available in 4 lengths, 12mm - 18mm, and 2 diameters, 3.2mm and 3.7mm.

02. Micro-threads within the Torx recess allow secure extraction of screws.

ANCHORS

Anchors are available in 3 lengths, 10mm - 14mm and Ø3.7mm diameter.
The sharp tip allows reduced impaction force for anchor insertion.
Threads within the anchor head allow secure extraction of anchors.

INSTRUMENT SET

	DESCRIPTION	REFERENCE
	INSTRUMENTATION CONTAINER	SCA-BX 80 01-N
	UNIVERSAL LID	LID-BX 11 30-N
	ANATOMIC SMOOTH TRIAL RACK	SCA-BX 80 03-N
	LORDOTIC TRIAL RACK	SCA-BX 80 04-N
	HYPERLORDOTIC TRIAL RACK	SCA-BX 80 05-N
	ANATOMICAL SMOOTH TRIAL SMALL H05 – H08 (GOLD)	SCA-00 AS XX-N
•	ANATOMICAL SMOOTH TRIAL SMALL H09 – H10 (GOLD)	SCA-00 AS XX-N
	ANATOMICAL SMOOTH TRIAL LARGE H05 – H08 (BLUE)	SCA-00 AL XX-N
•	ANATOMICAL SMOOTH TRIAL LARGE H09 – H10 (BLUE)	SCA-00 AL XX-N
	ANATOMICAL SMOOTH TRIAL EXTRA LARGE H05 – H08 (BRONZE)	SCA-00 AX XX-N
•	ANATOMICAL SMOOTH TRIAL EXTRA LARGE H09 – H10 (BRONZE)	SCA-00 AX XX-N
	LORDOTIC SMOOTH TRIAL SMALL H05 – H08 (GREEN)	SCA-00 LS XX-N
•	LORDOTIC SMOOTH TRIAL SMALL H09 – H10 (GREEN)	SCA-00 LS XX-N
	LORDOTIC SMOOTH TRIAL LARGE H05 – H08 (PURPLE)	SCA-00 LL XX-N
•	LORDOTIC SMOOTH TRIAL LARGE H09 – H10 (PURPLE)	SCA-00 LL XX-N
•	LORDOTIC SMOOTH TRIAL EXTRA LARGE H05 – H08 (PINK)	SCA-00 LX XX-N
•	LORDOTIC SMOOTH TRIAL EXTRA LARGE H09 – H10 (PINK)	SCA-00 LX XX-N

• : OPTIONAL

INSTRUMENT SET

	DESCRIPTION	REFERENCE
•	HYPERLORDOTIC SMOOTH TRIAL SMALL H06 – H09 (GREEN)	SCA-00 HS XX-N
•	HYPERLORDOTIC SMOOTH TRIAL SMALL H10 – H11 (GREEN)	SCA-00 HS XX-N
•	HYPERLORDOTIC SMOOTH TRIAL LARGE H06 – H09 (PURPLE)	SCA-00 HL XX-N
•	HYPERLORDOTIC SMOOTH TRIAL LARGE H10 – H11 (PURPLE)	SCA-00 HL XX-N
•	HYPERLORDOTIC SMOOTH TRIAL EXTRA LARGE H06 – H09 (PINK)	SCA-00 HX XX-N
•	HYPERLORDOTIC SMOOTH TRIAL EXTRA LARGE H10 – H11 (PINK)	SCA-00 HX XX-N
	IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
	IMPLANT HOLDER - STOP	SCA-IC 18 02-N
	IMPLANT HOLDER - HANDLE H05 - H07	SCA-IC 18 03-N
	IMPLANT HOLDER - HANDLE H08 – H11	SCA-IC 19 03-N
	IMPLANT HOLDER SHAFT	SCA-IC 18 04-N
	COMPACTION BASE	SCA-IC 17 00-N
	COMPACTOR	SCA-IN 19 00-N
	GUIDED STRAIGHT AWL	SCA-IC 23 00-N
	ANGLED AWL	SCA-IC 25 00-N
	AO HANDLE	HAN-SI AO 08-N
	STRAIGHT SCREWDRIVER	SCA-IC 26 00-N
	UNIVERSAL TUBE	SCA-IC 20 01-N
	U-JOINT SCREWDRIVER	SCA-IC 20 02-N
	U-JOINT GUIDE	SCA-IC 20 03-N
	ANCHOR IMPACTOR	SCA-IC 21 00-N
	ANCHOR ORIENTER	SCA-IC 29 00-N
	CAM LOCKER	SCA-IC 22 00-N
	REVISION SCREWDRIVER	SCA-IC 27 00-N
	REVISION SCREWDRIVER, INNER SHAFT	SCA-IC 31 00-N
	ANCHOR EXTRACTOR	SCA-IC 28 00-N
	SLAP-HAMMER	SCA-IC 36 00-N

• : OPTIONAL

INSTRUMENTS

AO HANDLE — HAN-SI AO 08-N

IMPLANT HOLDER SHAFT — SCA-IC 18 04-N

IMPLANT HOLDER - KNURL — SCA-IC 18 01-N

IMPLANT HOLDER HANDLE H05 - H07 — SCA-IC 18 03-N

IMPLANT HOLDER - STOP — SCA-IC 18 02-N

IMPLANT HOLDER HANDLE H08 - H11 — SCA-IC 19 03-N

COMPACTION BASE — SCA-IC 17 00-N

COMPACTOR — SCA-IN 19 00-N

GUIDED STRAIGHT AWL — SCA-IC 23 00-N

ANGLED AWL — SCA-IC 25 00-N

INSTRUMENTS

STRAIGHT SCREWDRIVER	SCA-IC 26 00-N

UNIVERSAL TUBE	SCA-IC 20 01-N

ANCHOR ORIENTER	SCA-IC 29 00-N

CAM LOCKER	SCA-IC 22 00-N

REVISION SCREWDRIVER, INNER SHAFT	SCA-IC 31 00-N

U-JOINT SCREWDRIVER	SCA-IC 20 02-N

U-JOINT GUIDE	SCA-IC 20 03-N

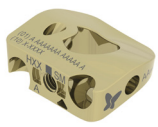
ANCHOR IMPACTOR	SCA-IC 21 00-N

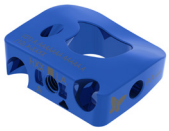
REVISION SCREWDRIVER	SCA-IC 27 00-N

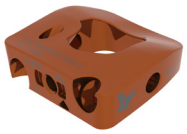
ANCHOR EXTRACTOR	SCA-IC 28 00-N

INSTRUMENTS

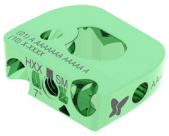
ANATOMICAL SMOOTH TRIAL S/L/XL H05-H10MM	SCA-00 AS XX-N SCA-00 AL XX-N SCA-00 AX XX-N	•


SMALL


LARGE


EXTRA LARGE

LORDOTIC SMOOTH TRIAL S/L/XL H05-H10MM	SCA-00 LS XX-N SCA-00 LL XX-N SCA-00 LX XX-N	•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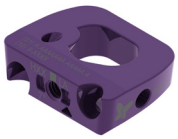
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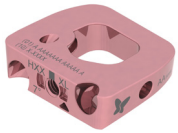
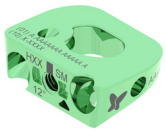

EXTRA LARGE

HYPERLORDOTIC SMOOTH TRIAL S/L/XL H06-H11MM	SCA-00 HS XX-N SCA-00 HL XX-N SCA-00 HX XX-N	•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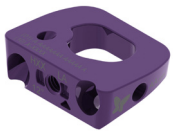

LARGE


EXTRA LARGE

SLAP-HAMMER	SCA-IC 36 00-N

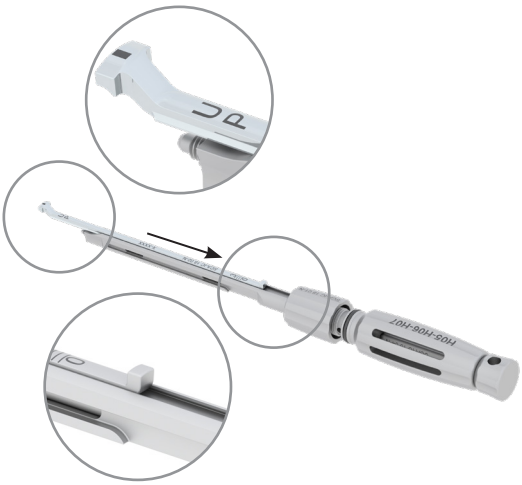
• : OPTIONAL

INSTRUMENT ASSEMBLY

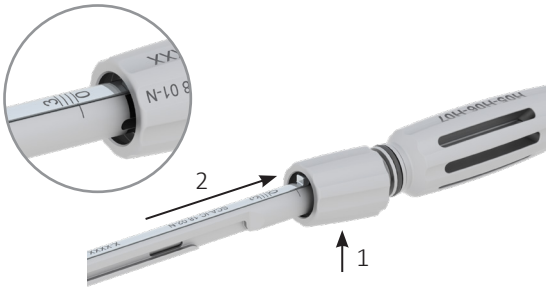
IMPLANT HOLDER ASSEMBLY

1. Slide the **Implant Holder Shaft** into the **Implant Holder - Handle** and rotate the knob clockwise.

2. Orient the **Implant Holder - Knurl** with the butterfly icon on the side of the **Implant Holder Handle** and slide it down the shaft. Do not screw the **Implant Holder - Knurl** onto the **Implant Holder - Handle**.

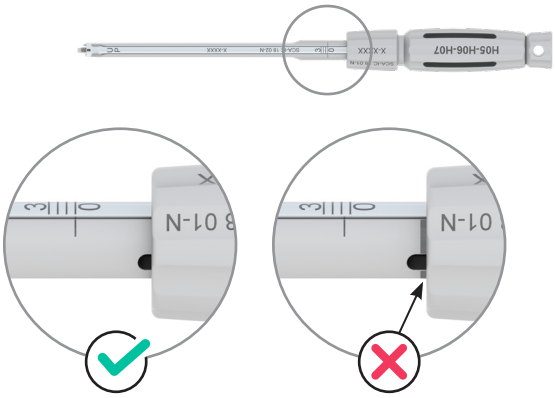


3. Slide the **Implant Holder - Stop** into the rails of the **Implant Holder - Handle** until it meets the **Implant Holder - Knurl**. The UP marking should be on the distal part of the assembly.



4. Lift the **Implant Holder - Knurl** slightly up to allow the **Implant Holder - Stop** to engage the knurl and secure the assembly.

INSTRUMENT ASSEMBLY



5. Screw the **Implant Holder - Knurl** counterclockwise onto the handle until the marked line of the stop matches the 0 line of the handle (the circular laser marking should not be visible as shown in the picture). At this position the adjustable stop places the trial/cage flush with the vertebral anterior wall. A visible laser marking indicates the cage will be recessed from the anterior wall of the vertebra.

⚠ **WARNING:** The **Implant Holder** must not be used without the stop.

The **Implant Holder** is ready to attach a trial or implant.

NOTE: Implant Holder H05-H07 is intended to be used with cage heights from 05mm - 07mm, all footprints and profiles.
Implant Holder H08-H11 is intended to be used with cage heights from 08mm-11mm, all footprints and profiles.

ANCHOR ORIENTER ASSEMBLY

Assemble only if an anchor is to be inserted.

1. Position the **Anchor Orienter** per the image to the left, arrows first.

2. Advance the **Anchor Orienter** in the lateral grooves of the **Implant Holder**.

3. Clip the **Anchor Orienter** onto the **Implant Holder**.

NOTE: The **Anchor Orienter** can be assembled or disassembled in situ.

INSTRUMENT ASSEMBLY

U-JOINT SCREWDRIVER ASSEMBLY

1. Insert the distal tip of the **U-joint Screwdriver** in the **U-joint Guide** and rotate the shaft of the screwdriver to position it in the angled part.

2. Slide the **Universal Tube** along the screwdriver.

3. Thread the **Universal Tube** onto the **U-joint Guide** by rotating counterclockwise.

4. Connect the **AO Universal Handle** to the screwdriver.

SURGICAL TECHNIQUE

_STEP 1

PATIENT POSITIONING AND ENDPLATE PREPARATION

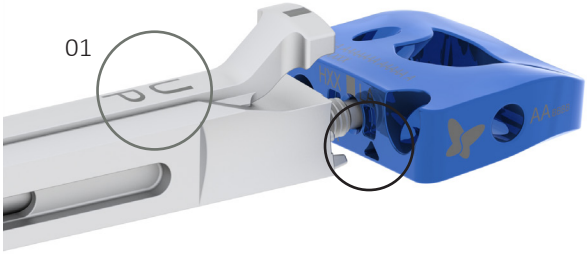
Place the patient in a supine position on the operating table.

A pillow can be positioned under the neck of the patient to preserve lordosis.

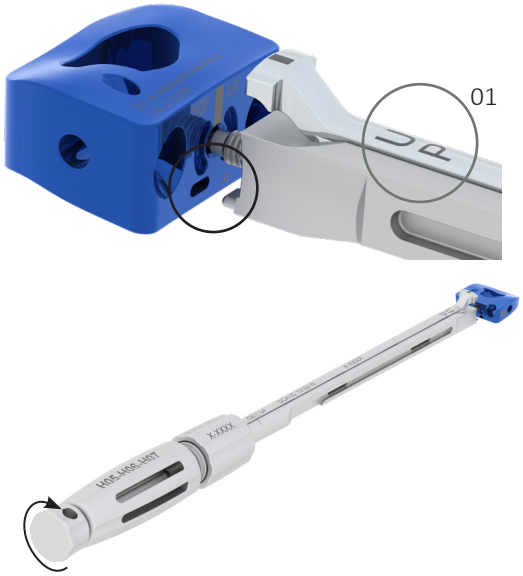
Disc material is removed, and endplates are prepared using various instruments: curettes, burrs, or rasps.

_STEP 2

IMPLANT HOLDER
H05-H06-H07



IMPLANT HOLDER
H08-H09-H10-H11



SELECTION OF THE IMPLANT SIZE

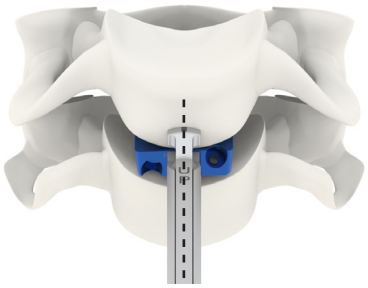
Use the **Anatomical Smooth Trial**, the **Lordotic Smooth Trial** or the **Hyperlordotic Smooth Trial** to determine the height and footprint (depth and width) of the implant.

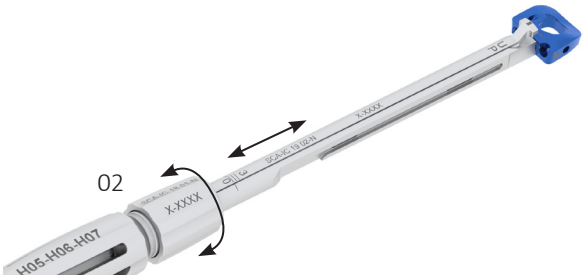
The selection of the implant size depends on the intervertebral space, patient anatomy and preparation technique.

Attach the **Trial** to the **Implant Holder** (see p.17 for **Implant Holder** Assembly). Ensure the cranial surface of the **Trial** is oriented with the UP marking on the **Holder** (01).
Mate the threaded shaft of the **Implant Holder** with the threaded center hole of the **Trial**. Mate the **Implant Holder** prong with the slotted recess on the **Trial**. Rotate the internal shaft clockwise to secure the **Trial.**

SURGICAL TECHNIQUE

01





02

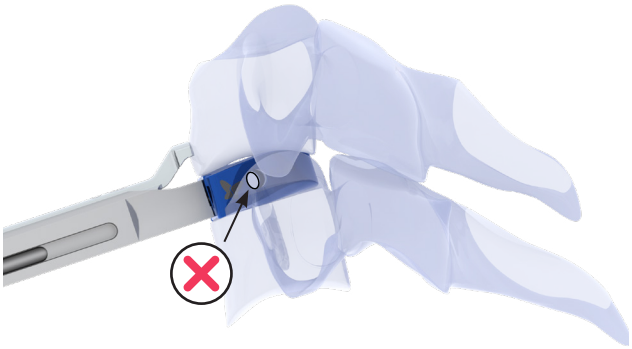
The black line on the **Implant Holder** helps center the Trial within the vertebral body (see image 01).

Adjust the distance between the **Implant Holder - Stop** and the **Trial** by rotating the **Implant Holder - Knurl** (02). The **Implant Holder** is used with the implant, so the position does not need to change.

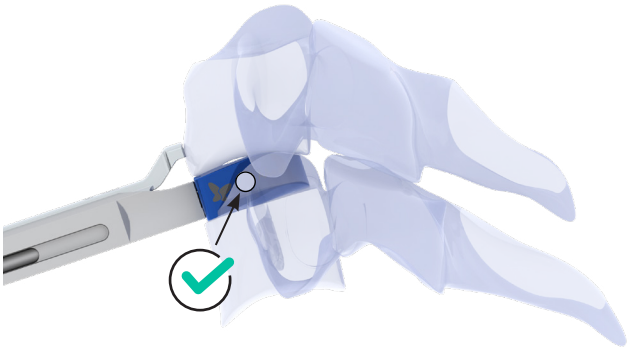
⚠ **WARNING:** SCARLET® AC-Ti screws and anchors may not be easy to insert if the cage is recessed. **Trials** include holes that represent the screw/anchor locations and trajectories found on the implant. The anterior corners of the vertebrae can be reamed where interference may occur between screw/anchor trajectories and the vertebrae.

A mallet can be used to gently insert the **Trial**.

Proper **Trial** position and fit are verified using AP and lateral fluoroscopic images

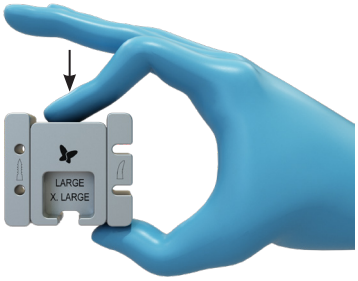


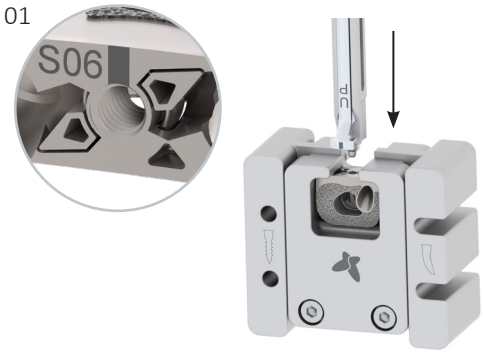
NOTE: The lateral hole of the **Trial** will appear circular when positioned correctly. Rotate the cage axially to ensure correct positioning.



INSTRUMENT	REFERENCE
IMPLANT HOLDER – HANDLE H05 – H07	SCA-IC 18 03-N
IMPLANT HOLDER – HANDLE H08 – H11	SCA-IC 19 03-N
IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
IMPLANT HOLDER - STOP	SCA-IC 18 02-N
IMPLANT HOLDER SHAFT	SCA-IC 18 04-N
ANATOMICAL SMOOTH TRIALS	SCA-IC AS XX-N SCA-IC AL XX-N SCA-IC AX XX-N
LORDOTIC SMOOTH TRIALS	SCA-IC LS XX-N SCA-IC LL XX-N SCA-IC LX XX-N
HYPERLORDOTIC SMOOTH TRIALS	SCA-IC HS XX-N SCA-IC HL XX-N SCA-IC HX XX-N

_STEP 3





ASSEMBLY OF THE IMPLANT ON THE IMPLANT HOLDER

Position the **Compaction Base** horizontally with the chosen footprint laser marking facing up.

Press the base as shown in the image to the left. Insert the cage (ensure marking on the anterior face of the cage is up (01)). The anterior face of the cage should allow the loading of the **Implant Holder**. Release pressure to secure the cage in the base.

Load the cage on the **Implant Holder** following the markings. Mate the threaded shaft of the **Implant Holder** with the threaded center hole of the cage. Mate the **Implant Holder** prong with the slotted recess on the cage. Rotate the internal shaft clockwise to secure the cage.

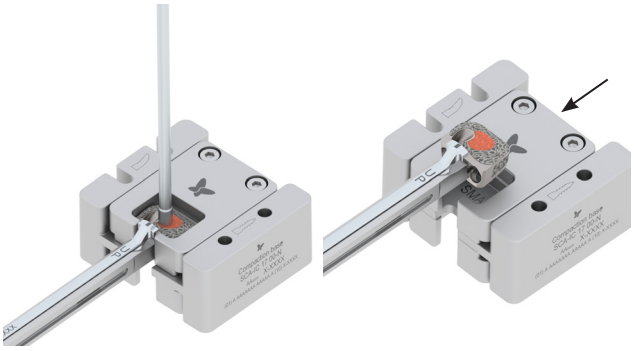
NOTE: The **Implant Holder** depth stop was set during trialing. The cage is inserted using the same instrument.

NOTE: Implant Holder H05-H07 is intended to be used with cage heights from 05mm-07mm, all footprints and profiles.
Implant Holder H08-H11 is intended to be used with cage heights from 08mm-11mm, all footprints and profiles.

INSTRUMENT	REFERENCE
IMPLANT HOLDER – HANDLE H05 – H07	SCA-IC 18 03-N
IMPLANT HOLDER – HANDLE H08 – H11	SCA-IC 19 03-N
IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
IMPLANT HOLDER - STOP	SCA-IC 18 02-N
IMPLANT HOLDER SHAFT	SCA-IC 18 04-N
COMPACTION BASE	SCA-IC 17 00-N

_STEP 4

01 02



CAGE PREPARATION

Fill the cage on the **Compaction base** (see step 3) with bone graft by using the **Compactor** (1).

Press anterior and posterior faces of the base simultaneously to remove the cage from the **Compaction base** (2).

INSTRUMENT	REFERENCE
COMPACTION BASE	SCA-IC 17 00-N
COMPACTOR	SCA-IN 19 00-N

_STEP 5

POSITIONING OF THE ANCHOR ORIENTER AND IMPLANT INSERTION

If 1 or 2 anchors are to be used in the cage, assemble the **Anchor Orienter** onto the **Implant Holder** (see instrument assembly p.18).

The **Implant Holder** depth stop was previously set during trialing.

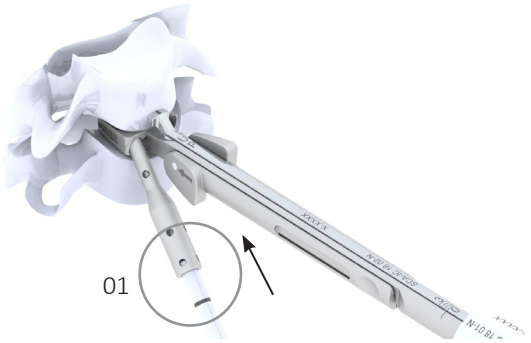
⚠ **WARNING:** The depth stop must always be set on the holder.

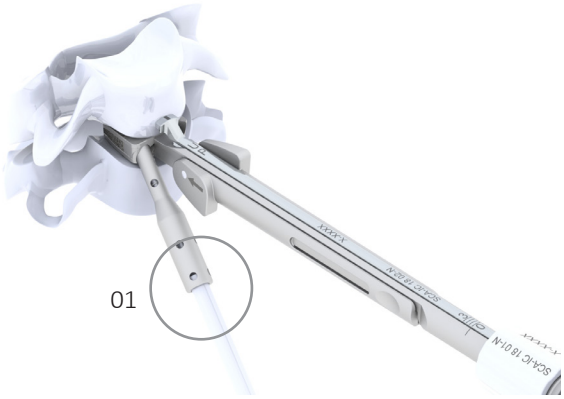
Insert the cage in the intervertebral space. If necessary, use a mallet to advance further until the **Implant Holder - Stop** is in contact with the vertebra.

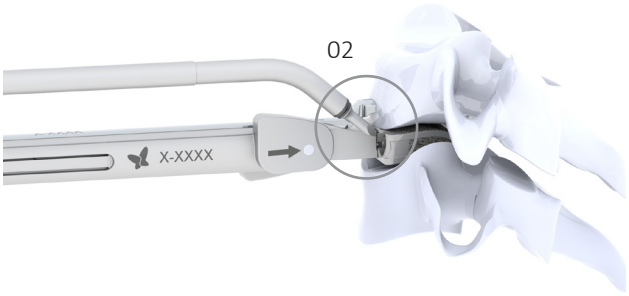
NOTE: The **Anchor Orienter** can be assembled in situ if an anchor is needed.

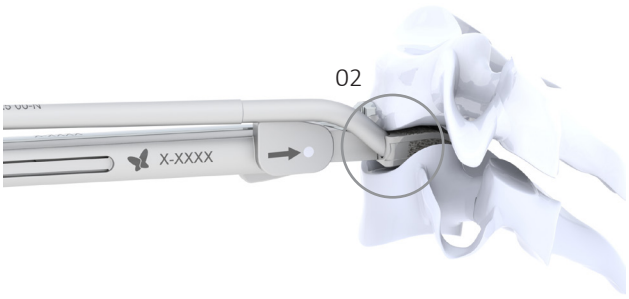
INSTRUMENT	REFERENCE
IMPLANT HOLDER – HANDLE H05 – H07	SCA-IC 18 03-N
IMPLANT HOLDER – HANDLE H08 – H11	SCA-IC 19 03-N
IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
IMPLANT HOLDER - STOP	SCA-IC 18 02-N
IMPLANT HOLDER SHAFT	SCA-IC 18 04-N
ANCHOR ORIENTER	SCA-IC 29 00-N

_STEP 6









PREPARATION OF THE SCREW/ ANCHOR SITE

Prepare the insertion holes of the screw/anchor in the vertebra by positioning the **Guided Straight Awl** into the cage tunnel. Connect the **Guided Straight Awl** to the **AO Handle**. Advance the **Awl** sleeve to the mechanical stop of the cage tunnel. Advance the tip of the **Awl** into the bone. The laser markings disappear into the sleeve when the tip is completely inserted (01).

Secure positioning of the sleeve into the cage tunnel ensures correct **Guided Straight Awl** angulation into bone.

The **Angled Awl** can also be used. The laser markings disappear into the sleeve when the tip is completely inserted (02).

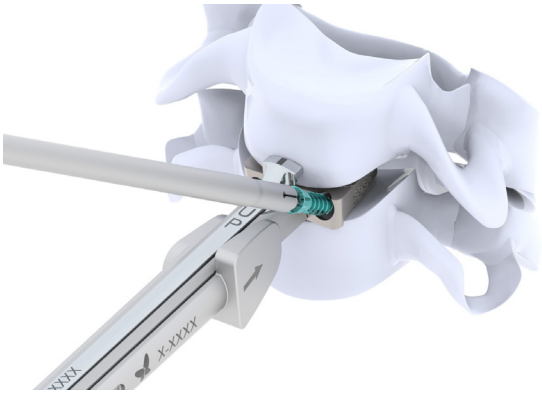
Repeat site preparation for the second screw/ anchor.

⚠ **WARNING:** The use of an **Awl** is mandatory to ensure adequate screw/anchor positioning.

NOTE: The **Awl** tip, when fully inserted, is 2mm shorter than the 12mm screw.

INSTRUMENT	REFERENCE
GUIDED STRAIGHT AWL	SCA-IC 23 00-N
ANGLED AWL	SCA-IC 25 00-N
IMPLANT HOLDER – HANDLE H05 – H07	SCA-IC 18 03-N
IMPLANT HOLDER – HANDLE H08 – H11	SCA-IC 19 03-N
IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
IMPLANT HOLDER - STOP	SCA-IC 18 02-N
IMPLANT HOLDER SHAFT	SCA-IC 18 04-N
ANCHOR ORIENTER	SCA-IC 29 00-N

_STEP 7



SCREW/ANCHOR INSERTION

SCREWS

Assemble the selected screwdriver with the **AO Handle**.
Load the screw onto the screwdriver.

NOTE: The **Compaction Base** may be used to facilitate the connection between screws and self-retaining screwdrivers.

Hold the **Implant Holder** to maintain orientation and position. Insert the screw using the **Straight** or **U-Joint Screwdriver** (see instrument assembly p.19).

Rotate the handle clockwise to advance the screw.

⚠ **WARNING:** if the **Anchor Orienter** is inserted on the **Implant Holder**, the **U-Joint Screwdriver** cannot be used.

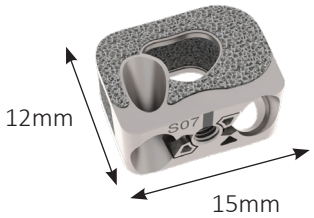
Use AP and lateral images to verify the implant position.

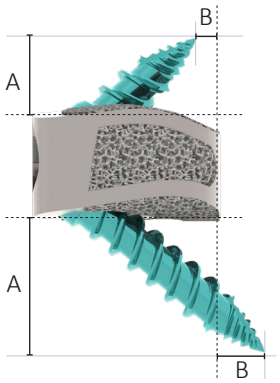
NOTE: The relative positioning of the screw in the cage is shown in the tables on page 26. It is recommended to use the 14mm screw for the small cage, the 16mm screw for the large cage and the 18mm screw for the extra-large cage.

SURGICAL TECHNIQUE

SCREW / CAGE CORRESPONDENCE

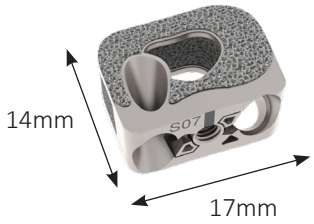
SMALL FOOTPRINT

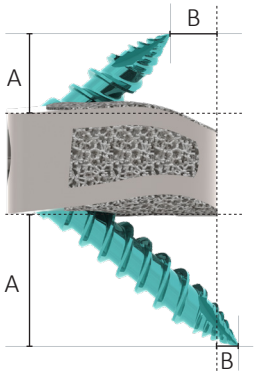




	A = HEIGHT	B = DISTANCE
SCREW 12 MM	5.0 mm	- 1.6 mm
SCREW 14 MM	6.3 mm	0.1 mm
SCREW 16 MM	7.5 mm	1.5 mm
SCREW 18 MM	8.8 mm	2.9 mm

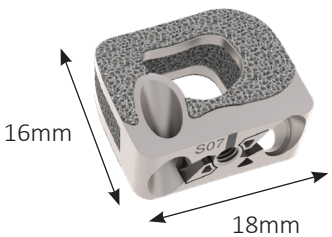
LARGE FOOTPRINT

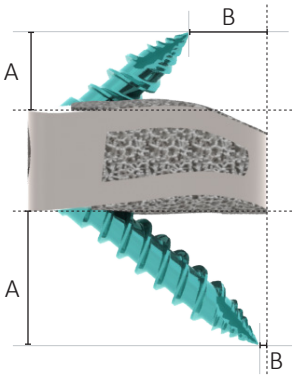




	A = HEIGHT	B = DISTANCE
SCREW 12 MM	5.0 mm	- 3.4 mm
SCREW 14 MM	6.3 mm	- 1.8 mm
SCREW 16 MM	7.5 mm	0.2 mm
SCREW 18 MM	8.8 mm	1.4 mm

EXTRA-LARGE FOOTPRINT



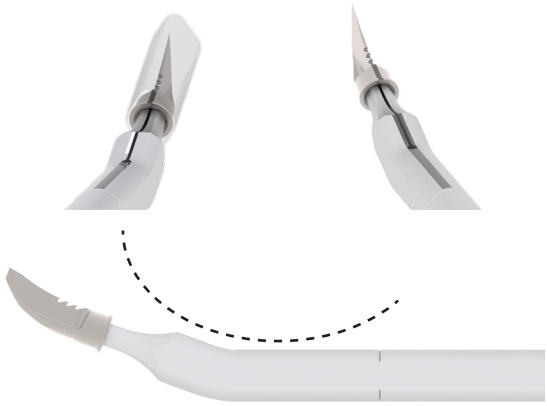


	A = HEIGHT	B = DISTANCE
SCREW 12 MM	5.0 mm	- 5.3 mm
SCREW 14 MM	6.3 mm	- 3.8 mm
SCREW 16 MM	7.5 mm	- 2.2 mm
SCREW 18 MM	8.8 mm	-0.6 mm

A = Height: distance between cage endplates and screw tip

B = Distance between cage posterior face and screw tip

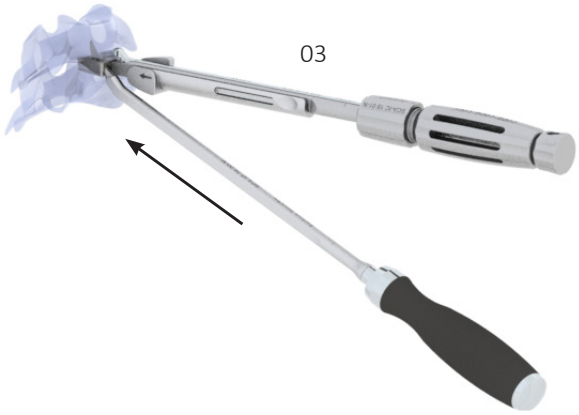
SURGICAL TECHNIQUE



01

02

03



ANCHORS

With the anchor tip in the protection sleeve, load the anchor onto the **Anchor Impactor**. Apply slight pressure on the sleeve flats to release the anchor.

NOTE: Align the anchor laser marking with the **Anchor Impactor** laser marking.

NOTE: The anchor should follow the curvature of the **Anchor Impactor**.

Position the **Anchor Impactor** in contact with the wings of the **Anchor Orienter** to ensure correct anchor angulation within the cage tunnel.

Advance the tip of the anchor into the cage tunnel (01). Slide the flat surface of the **Anchor Impactor** on the flat surface of the **Anchor Orienter** (02). Gently impact the **Anchor Impactor** to advance the anchor into the bone (03). While impacting, the instrument will follow the tunnel angulation, thus, tilting towards the opposite side of the starting point (03).

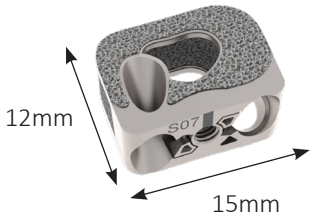
Use the mallet to slightly impact the **Anchor Impactor** and insert the anchor.

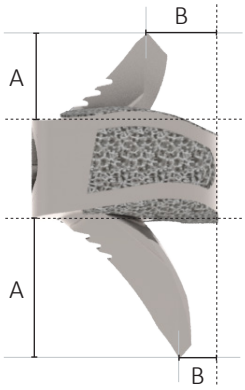
INSTRUMENT	REFERENCE
AO HANDLE	HAN-SI AO 08-N
STRAIGHT SCREWDRIVER	SCA-IC 26 00-N
U-JOINT SCREWDRIVER	SCA-IC 20 02-N
UNIVERSAL TUBE	SCA-IC 20 01-N
U-JOINT GUIDE	SCA-IC 20 03-N
ANCHOR IMPACTOR	SCA-IC 21 00-N
IMPLANT HOLDER HANDLE H05 – H07	SCA-IC 18 03-N
IMPLANT HOLDER HANDLE H08 – H11	SCA-IC 19 03-N
IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
IMPLANT HOLDER - STOP	SCA-IC 18 02-N
IMPLANT HOLDER SHAFT	SCA-IC 18 04-N
ANCHOR ORIENTER	SCA-IC 29 00-N

SURGICAL TECHNIQUE

ANCHOR / CAGE CORRESPONDENCE

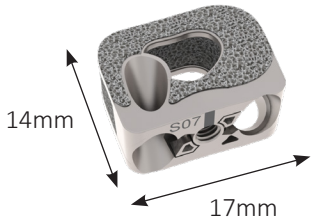
SMALL FOOTPRINT

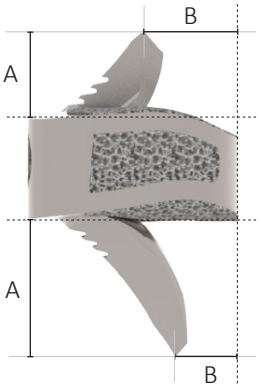




	A = HEIGHT	B = DISTANCE
ANCHOR 10 MM	5.6 mm	- 4.5 mm
ANCHOR 12 MM	7.4 mm	-3.5 mm
ANCHOR 14 MM	9.2 mm	-2.5 mm

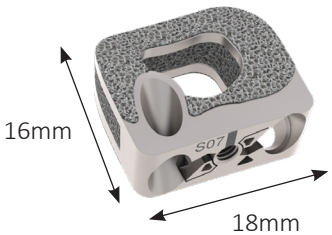
LARGE FOOTPRINT

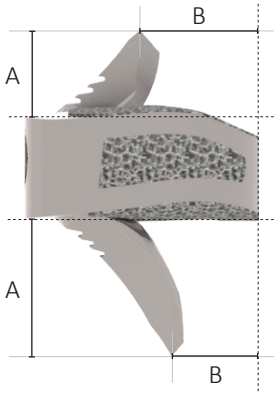




	A = HEIGHT	B = DISTANCE
ANCHOR 10 MM	5.6 mm	- 6.4 mm
ANCHOR 12 MM	7.4 mm	-5.4 mm
ANCHOR 14 MM	9.2 mm	-4.4 mm

EXTRA-LARGE FOOTPRINT





	A = HEIGHT	B = DISTANCE
ANCHOR 10 MM	5.6 mm	- 8.4 mm
ANCHOR 12 MM	7.4 mm	-7,3 mm
ANCHOR 14 MM	9.2 mm	-6.3 mm

A = Height: distance between cage endplates and anchor tip

B = Distance between cage posterior face and anchor tip

_STEP 8

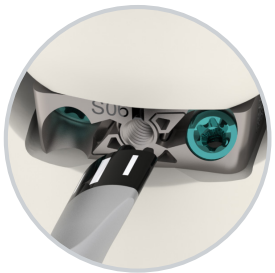
IMPLANT HOLDER REMOVAL

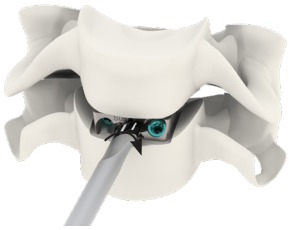
Once the anchors/screws are fully inserted in the tunnels of the cage, rotate the **Implant Holder-Shaft** counterclockwise to release the cage from the **Implant Holder**.

NOTE: For additional torque, the **Straight Screwdriver** can be inserted in the hole of the **Implant Holder - Shaft** knob to provide additional torque.

INSTRUMENT	REFERENCE
IMPLANT HOLDER HANDLE H05 – H07	SCA-IC 18 03-N
IMPLANT HOLDER HANDLE H08 – H11	SCA-IC 19 03-N
IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
IMPLANT HOLDER - STOP	SCA-IC 18 02-N
IMPLANT HOLDER SHAFT	SCA-IC 18 04-N
ANCHOR ORIENTER	SCA-IC 29 00-N

_STEP 9





CAM LOCK OPEN

CAM LOCK CLOSED

CAM LOCK ACTIVATION

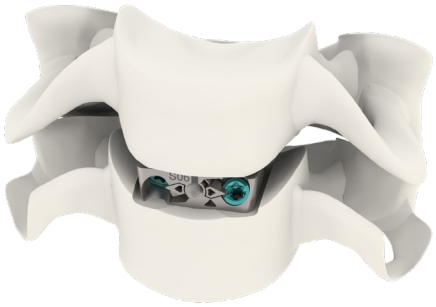
After the two screws/anchors are properly inserted (in frontal view, part of the screw/anchor head will not be visible), activate the anti-backout mechanism.

Introduce the **Cam Locker**. Insert the **Cam Locker** shaft into the central cage hole and mate the two **Cam Locker** prongs to the two Cam recesses. Rotate the cam clockwise to the locked position.

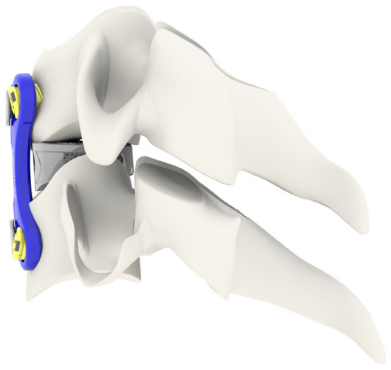
INSTRUMENT	REFERENCE
CAM LOCKER	SCA-IC 22 00-N

SURGICAL TECHNIQUE

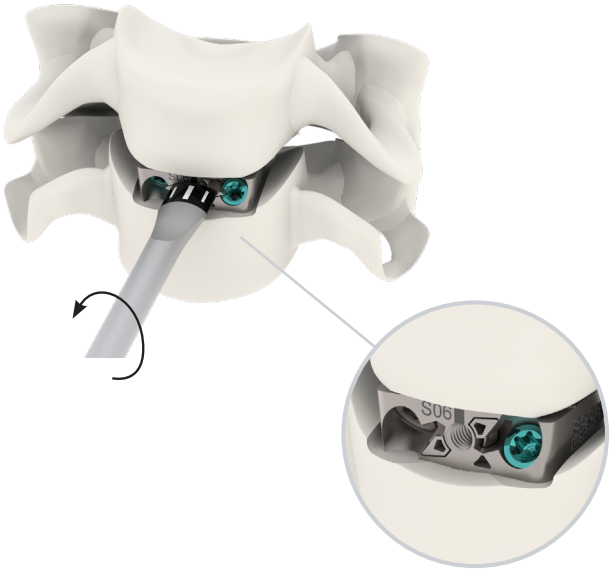
_FINAL CONSTRUCT WITH SCREWS



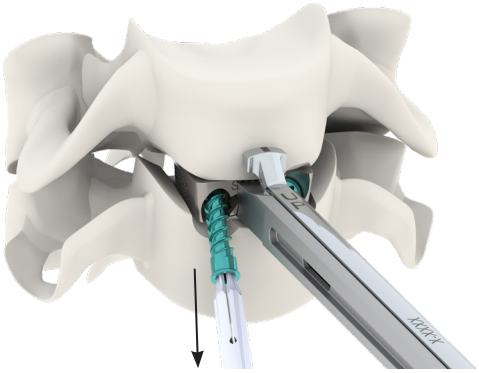
_FINAL CONSTRUCT WITH ANCHOR(S) AND/OR HYPERLORDOTIC IMPLANT



_REVISION



01



02

To unlock the Cam, mate the **Cam Locker** to the Cam and rotate counterclockwise.

SCREW REMOVAL

Mate the **Implant Holder** to the cage.

Mate the **Screwdriver** to the screw and rotate counterclockwise until the screw is removed.

Alternatively, use the **Revision screwdriver** to remove screws (02).

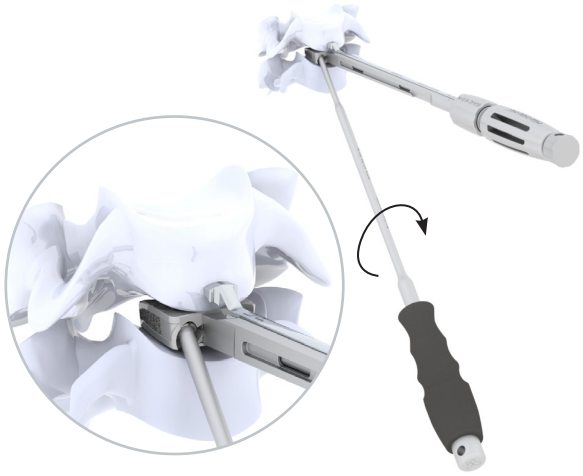
Mate the **Revision Screwdriver** tip to the torx recess of the screw and rotate the **Revision Screwdriver Shaft** clockwise to lock the screw to the driver.

Rotate the **Revision Screwdriver** counterclockwise to remove the screw.

Repeat for the remaining screw.

INSTRUMENT	REFERENCE
CAM LOCKER	SCA-IC 22 00-N
STRAIGHT SCREWDRIVER	SCA-IC 26 00-N
REVISION SCREWDRIVER	SCA-IC 27 00-N
REVISION SCREWDRIVER, INNER SHAFT	SCA-IC 31 00-N

SURGICAL TECHNIQUE



ANCHOR REMOVAL

Mate the **Anchor Extractor** to the anchor and secure by rotating clockwise.

NOTE: Do not overtighten the **Anchor Extractor**.

Once secured, connect the **Slap-hammer** to the **Anchor Extractor.**

While holding the **Anchor Extractor**, repeatedly slide the **Slap-Hammer** barrel away from the **Anchor Extractor** to gradually remove the anchor. Ensure the **Slap-Hammer** and **Anchor Extractor** remain axially aligned.

INSTRUMENT	REFERENCE
ANCHOR EXTRACTOR	SCA-IC 28 00-N
SLAP-HAMMER	SCA-IC 36 00-N

CAGE REMOVAL

Pull the **Implant Holder** to remove the cage. The **Slap-Hammer** can be used to provide additional extraction force.

INSTRUMENT	REFERENCE
IMPLANT HOLDER - HANDLE H5-H7	SCA-IC 18 03-N
IMPLANT HOLDER - HANDLE H8-H11	SCA-IC 19 03-N
IMPLANT HOLDER - KNURL	SCA-IC 18 01-N
IMPLANT HOLDER - STOP	SCA-IC 18 02-N
SLAP-HAMMER	SCA-IC 36 00-N

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