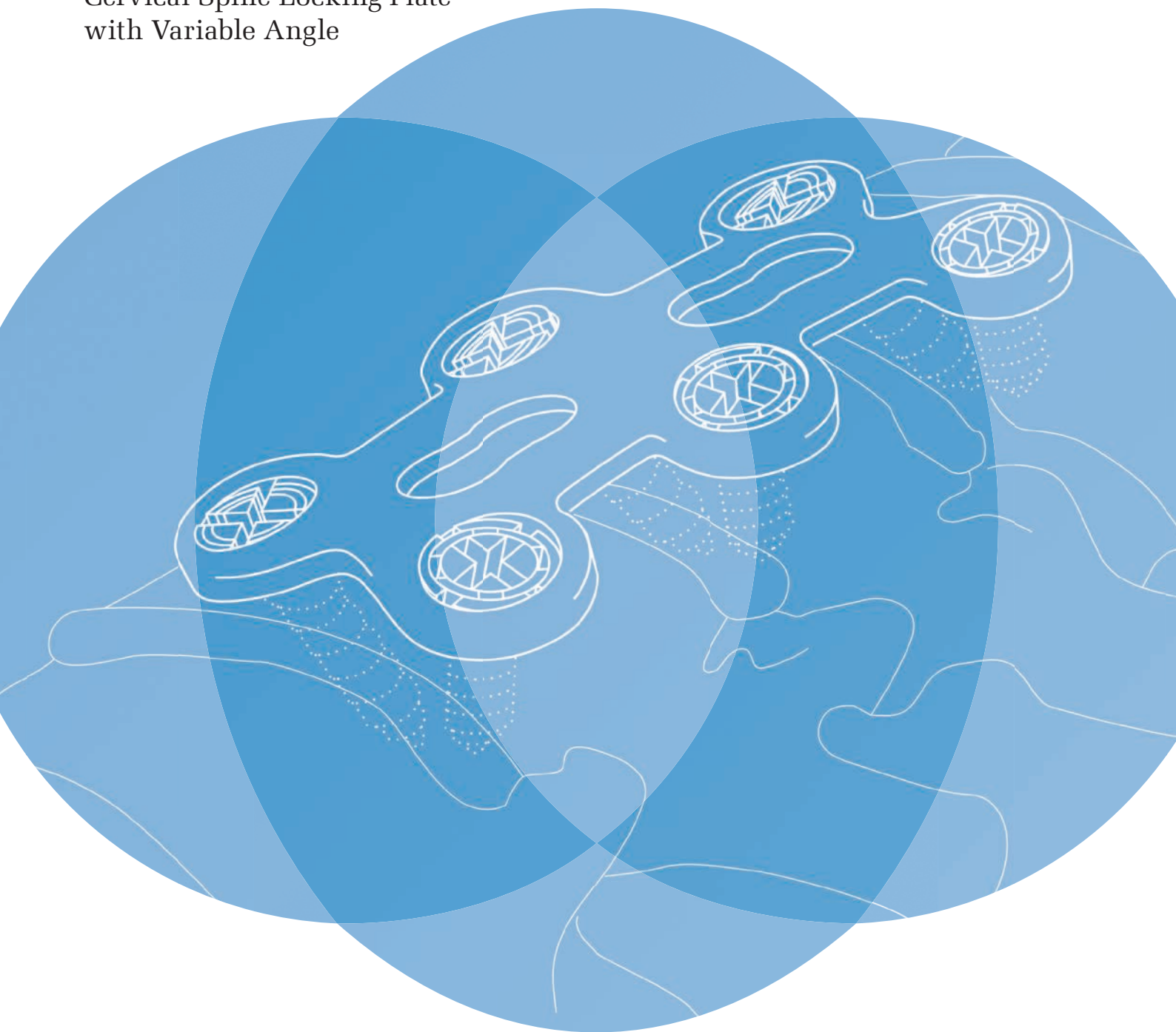


CSLP VA

Cervical Spine Locking Plate
with Variable Angle



Instruments and implants approved by the AO Foundation.
This publication is not intended for distribution in the USA.

SURGICAL TECHNIQUE

 Image intensifier control

This description alone does not provide sufficient background for direct use of DePuy Synthes products. Instruction by a surgeon experienced in handling these products is highly recommended.

Processing, Reprocessing, Care and Maintenance

For general guidelines, function control and dismantling of multi-part instruments, as well as processing guidelines for implants, please contact your local sales representative or refer to:

<http://emea.depuyshnthes.com/hcp/reprocessing-care-maintenance>

For general information about reprocessing, care and maintenance of Synthes reusable devices, instrument trays and cases, as well as processing of Synthes non-sterile implants, please consult the Important Information leaflet (SE_023827) or refer to:

<http://emea.depuyshnthes.com/hcp/reprocessing-care-maintenance>

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Indications/Contraindications

Indications

The cervical spine locking plate with variable angle is used for internal anterior fixations of the spine (C2–T2) for the management of instability in the following situations:

- fractures
- degenerative disorders
- tumours
- partial or complete resection of a vertebral body

Contraindications

- Severe osteoporosis and indications not listed above
- Any indication where fusion is not required

Notes:

- Self-drilling expansion head screws must not be used together with cervical spine locking plates with a fixed screw angle since this impedes correct alignment of the screw with the plate hole, thereby preventing flush countersinking of the screw head in the plate hole. Self-drilling expansion head screws must not be used for bicortical screw fixation.
 - Similarly, bicortical, self-tapping expansion head screws must not be used together with cervical spine locking plates with a fixed screw angle, otherwise the screw tips would cross.
 - For correct use of the cervical spine locking plates with a fixed screw angle please consult the corresponding Surgical Technique (Art. no. 036.000.062).
-

AO Spine Principles

The four principles to be considered as the foundation for proper spine patient management underpin the design and delivery of the Curriculum: Stability – Alignment – Biology – Function.^{1,2}

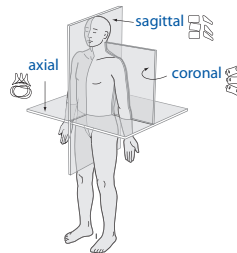
Stability

Stabilization to achieve a specific therapeutic outcome



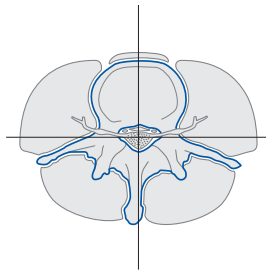
Alignment

Balancing the spine in three dimensions



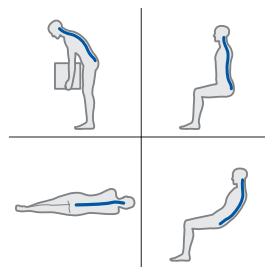
Biology

Etiology, pathogenesis, neural protection, and tissue healing



Function

Preservations and restoration of function to prevent disability



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¹ Aebi et al (1998)

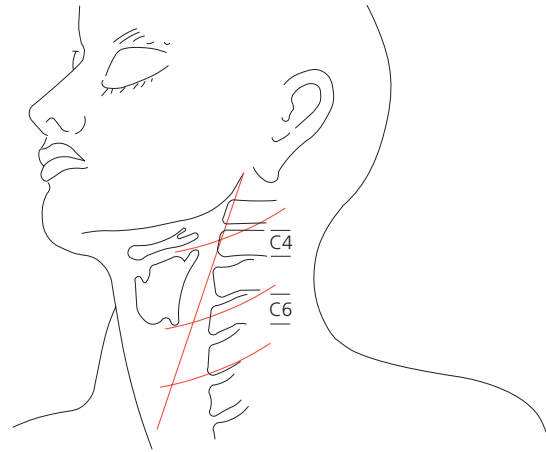
² Aebi et al (2007)

1

Position patient and surgical approach

For plating of the middle and lower cervical spine till T2 select the anterolateral approach. With the patient supine, turn the head slightly away from the operator. A long incision is recommended if the plating is to be extended over several segments.

When exposing the vertebral bodies it is important to remove, or incise, the anterior longitudinal ligament only at those points where the intervertebral disc is to be bridged by the plating. Under no circumstances should the anterior longitudinal ligament be damaged in adjacent segments not included in the plating.

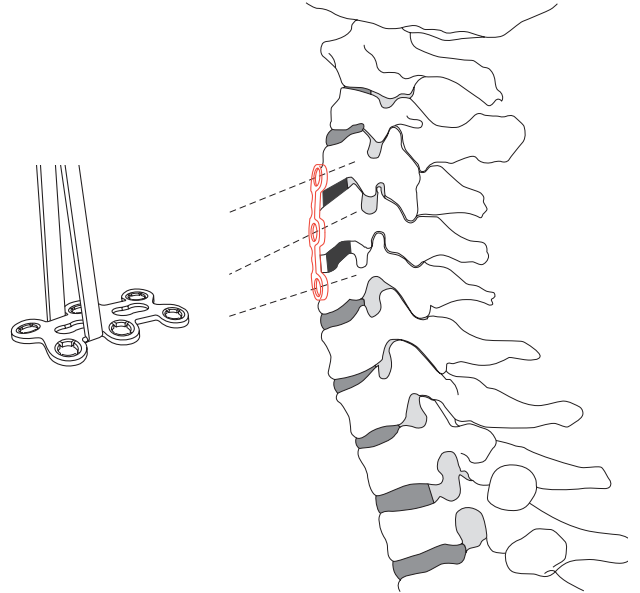


2

Select, pick up and position plate

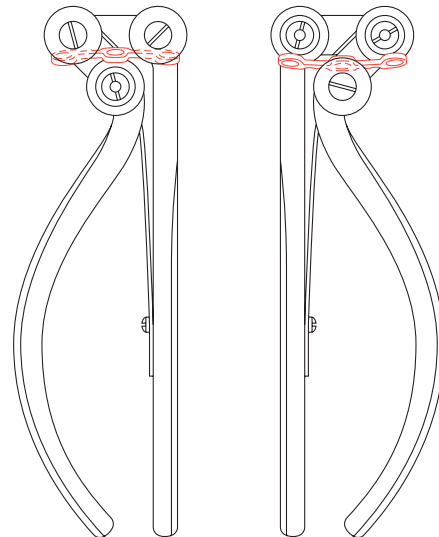
Select a plate of the approximate length. The figures marked on the plate and implant rack refer to the distance between the cranial and caudal pairs of holes. Pick up the plate with the Holding Forceps for Cervical Spine Locking Plates (387.532) and position the plate on the segments to be bridged so that the pairs of holes are centred over the vertebral bodies.

Precaution: Make sure there will be enough space between the intact adjacent intervertebral discs and the screws.



If the plate needs to be bent, ensure that the screw holes are not distorted, otherwise it will not be possible to insert the expansion head screws. To bend the plates, use the Universal Bending Pliers for Cervical Spine Locking Plates (387.293).

Precaution: Repeated bending may weaken the plate.

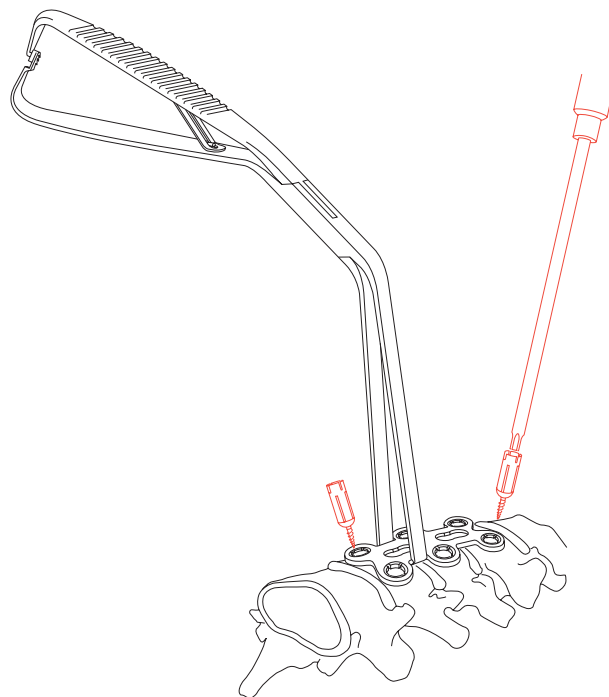


3

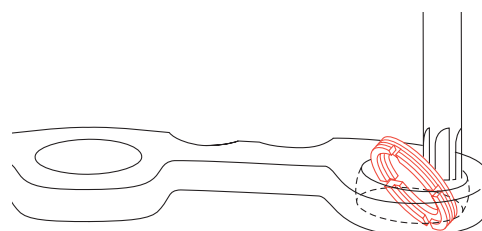
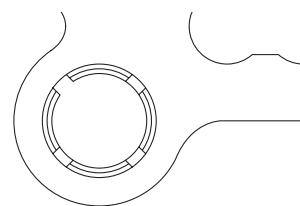
Fix plate

Using the self-holding, cruciform Screwdriver Shaft 4.0/4.35/4.5 (387.281) and Handle with Quick Coupling (311.430), pick up a Fixation Pin for Cervical Spine Locking Plates (387.595) and screw into a cranial plate hole. Insert a second fixation pin into the diagonally opposite plate hole. Remove the screwdriver and holding forceps.

Precaution: Intraoperative imaging should be used for a lateral view of the position of the fixation pins to indicate the potential positions of the screws.



Note: Before the plate is fixed to the bone, ensure that all swivel rings are correctly inserted. The four slots in the swivel ring must point upwards. If necessary, tilt and turn the swivel ring in the plate hole using the tip of the cruciform screwdriver shaft.





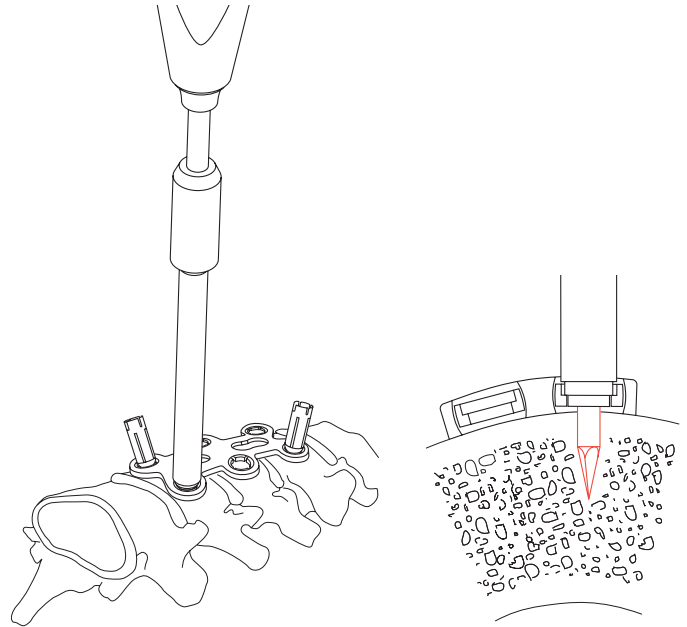
Self-drilling screws

4a

Pierce hole in cortex

Locate the Awl for self-drilling Cervical Spine Expansion Head Screws (387.291) on the swivel ring and align the awl according to the selected screw angle. Press the awl to pierce a hole in the cortex. This hole piercing helps centre the self-drilling screw in the plate hole and guide it in the desired direction.

- **Precaution:** Intraoperative imaging should be used to verify awl position.





Self-tapping screws

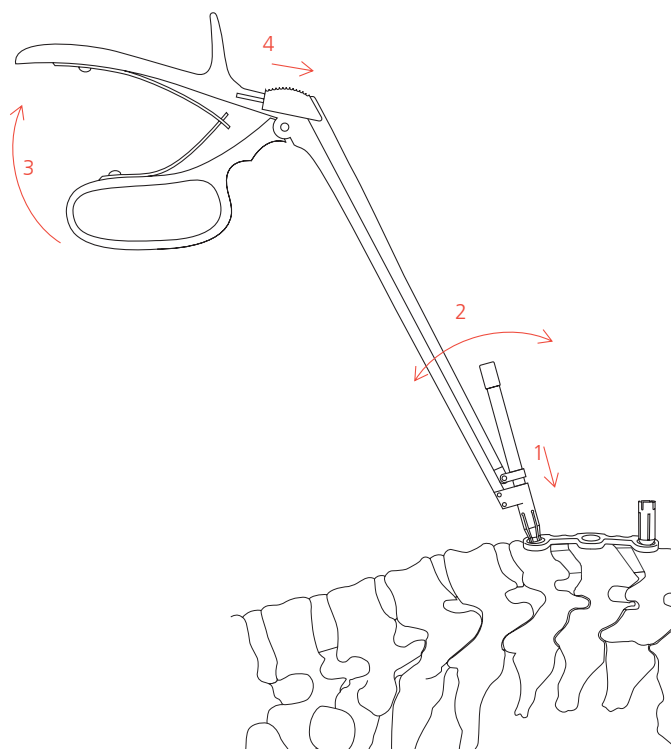
4b

Drill screw holes

Insert the self-holding Drill Sleeve 3.0 (387.286) in the swivel ring in the plate hole (1) and incline it in the desired direction of drilling (2). Squeeze the handle (3) and lock the drill guide by pushing the slide forward (4).

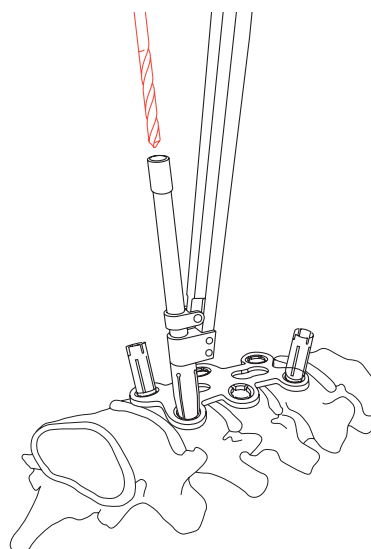
Precautions:

- Do not move the drill guide while it is inserted in the swivel ring and the handle is squeezed or locked, otherwise the interlock between the swivel ring and plate may be weakened.
- Intraoperative imaging should be used to check the drilling operation.



Drill Bits \varnothing 3.0 mm with Stop

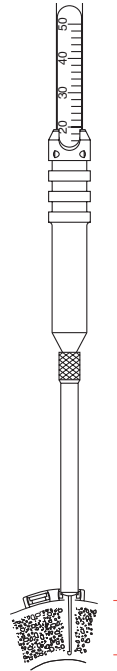
Art. no.	Depth
387.220	14 mm
324.160	16 mm
387.228	18 mm
387.275	20 mm
387.232	22 mm
387.234	24 mm
387.236	26 mm





Self-tapping screws

Estimate the depth of the drilled hole through the plate hole using the screw length indicator, depth up to 50 mm (387.292). The reading shown on the screw length indicator scale corresponds with the screw length to be selected.





Self-drilling/Self-tapping screws

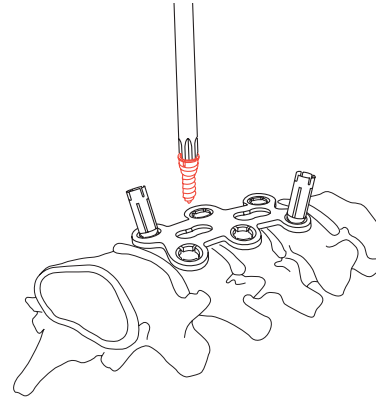
5

Insert self-drilling or self-tapping expansion head screws

Pick up an expansion head screw using the self-holding cruciform screwdriver shaft 4.0/4.35/4.5 and handle, insert through the swivel ring in the direction of the pierced/predrilled hole and tighten until the screw head is countersunk in the swivel ring.

Precautions:

- Keep the screwdriver steady when picking up and inserting the screws and only apply gentle pressure to the screws otherwise the screw head may expand prematurely, thus preventing flush countersinking.
 - Intraoperative imaging should be used to verify screw position.
-



Cervical Spine Expansion Head Screws, self-drilling, Pure Titanium*

Art. no.	Ø	Length	Colour code
450.137	4.0 mm	12 mm	light blue
450.138	4.0 mm	14 mm	gold
450.139	4.0 mm	16 mm	violet
450.144	4.5 mm	12 mm	light blue
450.145	4.5 mm	14 mm	gold
450.146	4.5 mm	16 mm	violet

Warning: In the event of wide bridging or poor bone quality, the surgeon must decide whether the longest self drilling screw (16 mm) will provide sufficient stability. For unstable situations bicortical anchorage (with self tapping screws) and/or dorsal stabilization may be required. 4.5 mm self drilling screws can be used as emergency screws if a 4.0 mm screw has damaged the bone and a larger screw thread is required.

Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, Pure Titanium*

Art. no.	Length	Colour code
487.042	12 mm	light blue
487.044	14 mm	gold
487.046	16 mm	violet
450.127	18 mm	light green
450.128	19 mm	light green
450.129	20 mm	light green
450.193	22 mm	light green
450.195	24 mm	light green
450.197	26 mm	light green

* All screws are also available sterile packed.
Add suffix "S" to article number.

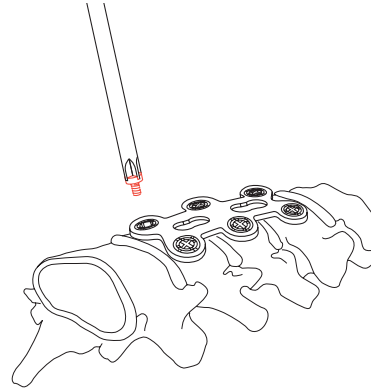


Self-drilling/Self-tapping screws

6

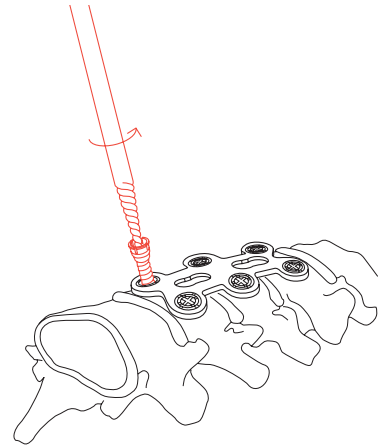
Lock screws

Pick up Locking Screws \varnothing 1.8 mm (497.780) with the Screw-driver Shaft 1.8, cruciform, self-holding (387.285) and Handle and carefully screw into the screw heads. The locking screw expands the screw head and swivel ring to lock the screw in the plate.



Implant Removal

Remove the locking screws \varnothing 1.8 mm from the expansion head screws using the Screwdriver Shaft 1.8, cruciform, self-holding (387.285) and Handle with Quick Coupling (311.430). Attach the Extraction Screw, conical, with left-hand thread (387.340) to the handle and screw counterclockwise into the expansion head screws. Remove the expansion head screws by continuing the counterclockwise turns. The removed expansion head screws can be released from the conical extraction screw by clockwise turns.



Implants

Plates

CSLP VA Plates*

One-level plates

Art. No.	Plate length mm
450.151	23
450.152	25
450.153	27
450.154	29
450.155	31
450.156	33
450.157	35



Two-level plates

Art. No.	Plate length mm
450.161	37
450.162	40
450.163	43
450.164	46
450.165	49
450.166	52
450.167	55



* All implants are also available sterile packed.
Add suffix "S" to article number.

Three-level plates

Art. No.	Plate length mm
450.171	54
450.172	57
450.173	60
450.174	63
450.175	66
450.176	69
450.177	72
450.178	75
450.179	78





Four-level plates

Art. No.	Plate length mm
450.181	69
450.182	73
450.183	77
450.184	81
450.185	85
450.186	89
450.187	93
450.188	97
450.189	101
450.190	105
450.191	109





* All implants are also available sterile packed.
Add suffix "S" to article number.

Screws*

450.127	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 18 mm, Pure Titanium, light green	
450.129	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 20 mm, Pure Titanium, light green	
450.193	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 22 mm, Pure Titanium, light green	
450.195	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 24 mm, Pure Titanium, light green	
450.197	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 26 mm, Pure Titanium, light green	
487.042	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, with cortex thread, length 12 mm, Pure Titanium, light blue	
487.044	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 14 mm, Pure Titanium	
487.046	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 16 mm, Pure Titanium, violet	
450.128	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-tapping, length 19 mm, Pure Titanium, light green	
450.137	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-drilling, length 12 mm, Pure Titanium, light blue	
450.138	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-drilling, length 14 mm, Pure Titanium, gold	
450.139	Cervical Spine Expansion Head Screw Ø 4.0 mm, self-drilling, length 16 mm, Pure Titanium, violet	
450.144	Cervical Spine Expansion Head Screw Ø 4.5 mm, self-drilling, length 12 mm	

* All screws are also available sterile packed.
Add suffix "S" to article number.

450.145	Cervical Spine Expansion Head Screw Ø 4.5 mm, self-drilling, length 14 mm, Pure Titanium, gold	
450.146	Cervical Spine Expansion Head Screw Ø 4.5 mm, self-drilling, length 16 mm, Pure Titanium, violet	
497.780	Locking Screw Ø 1.8 mm, Pure Titanium	

Instruments

311.430 Handle with Quick Coupling, length 110 mm



324.160 Drill Bit Ø 3.0 mm with Stop, length 190/45 mm, drilling depth 16 mm, 2-flute, for Quick Coupling



387.220 Drill Bit Ø 3.0 mm with Stop, length 180/45 mm, drilling depth 14 mm, 2-flute, for Quick Coupling

387.228 Drill Bit Ø 3.0 mm with Stop, drilling depth 18 mm, 2-flute, for Quick Coupling

387.232 Drill Bit Ø 3.0 mm with Stop, drilling depth 22 mm, 2-flute, for Quick Coupling

387.234 Drill Bit Ø 3.0 mm with Stop, drilling depth 24 mm, 2-flute, for Quick Coupling

387.236 Drill Bit Ø 3.0 mm with Stop, drilling depth 26 mm, 2-flute, for Quick Coupling

387.275 Drill Bit Ø 3.0 mm, length 190/50 mm, 2-flute, for Quick Coupling

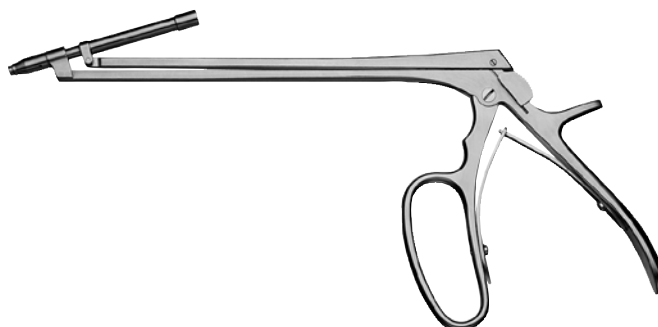
387.281 Screwdriver Shaft 4.0/4.35/4.5, cruciform, self-holding, length 180 mm



387.285 Screwdriver Shaft 1.8, cruciform, self-holding, length 190 mm



387.286 Drill Sleeve 3.0, self-holding, for Cervical Spine Locking Plates with variable angle



387.291 Awl for self-drilling Cervical Spine
Expansion Head Screws



387.292 Screw Length Indicator,
Depth up to 50 mm



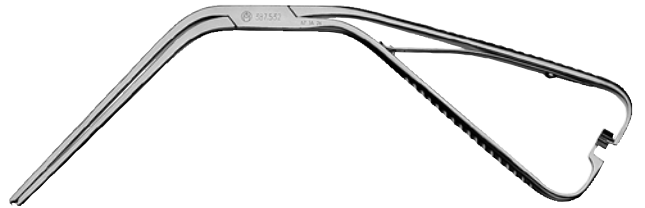
387.293 Universal Bending Pliers for Cervical Spine
Locking Plates



387.340 Extraction Screw, conical, with left-hand
thread, for Cervical Spine Locking System



387.532 Holding Forceps for Cervical Spine Locking
Plates, angled



387.595 Fixation Pin for Cervical Spine Locking
Plates, for temporary use



Bibliography

Aebi M, Thalgott JS, Webb JK (1998): AO ASIF Principles in Spine Surgery. Berlin: Springer.

Aebi M, Arlet V, Webb JK (2007): AOSPINE Manual (2 vols), Stuttgart, New York: Thieme.

