

CSLP

Cervical Spine Locking Plate

Surgical Technique

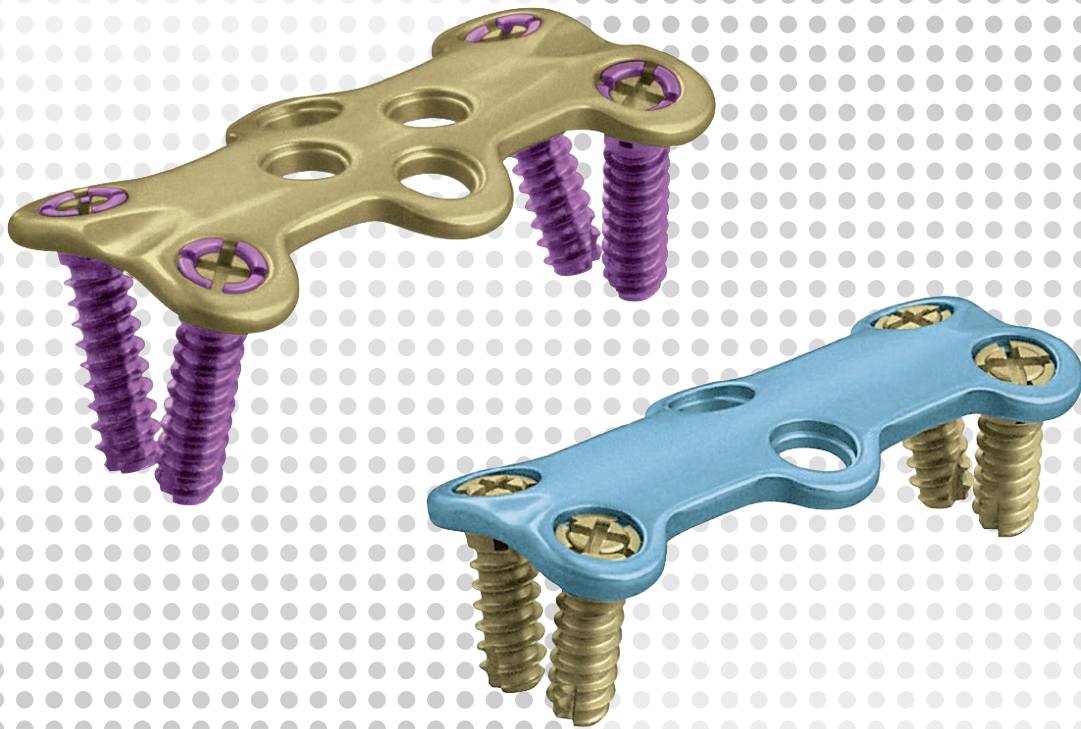



 Image intensifier control

 Warnings and Precautions

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.depuysynthes.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.depuysynthes.com/hcp/reprocessing-care-maintenance>

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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}

AO Principles^{1,2}

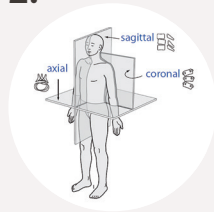
1.



Stability

Stabilization to achieve a specific therapeutic outcome.

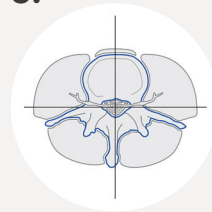
2.



Alignment

Balancing the spine in three dimensions.

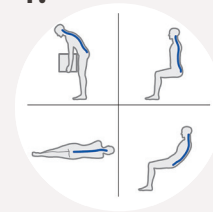
3.



Biology

Etiology, pathogenesis, neural protection, and tissue healing.

4.



Function

Preservations and restoration of function to prevent disability.

Surgical Technique

1. Patient Positioning

The patient should be placed in the supine position, with his/her head turned slightly away from the operator.

2. Select Plate

When choosing the suitable plate size, it must be considered that the intervertebral discs in the neck region are slightly inclined from antero-caudal to postero-cranial

▲ Precautions:

- Ensure that the screws will remain totally in the vertebral body and will not penetrate the intervertebral discs.
- Make sure there will be enough space between the intact adjacent intervertebral discs and the screws.

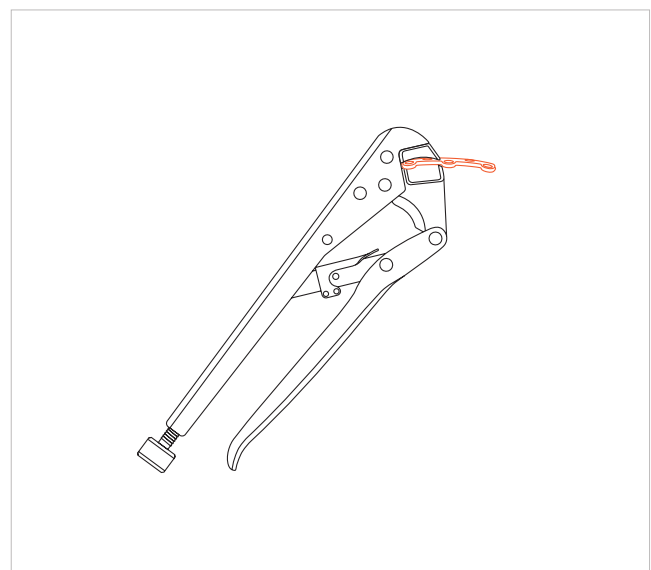
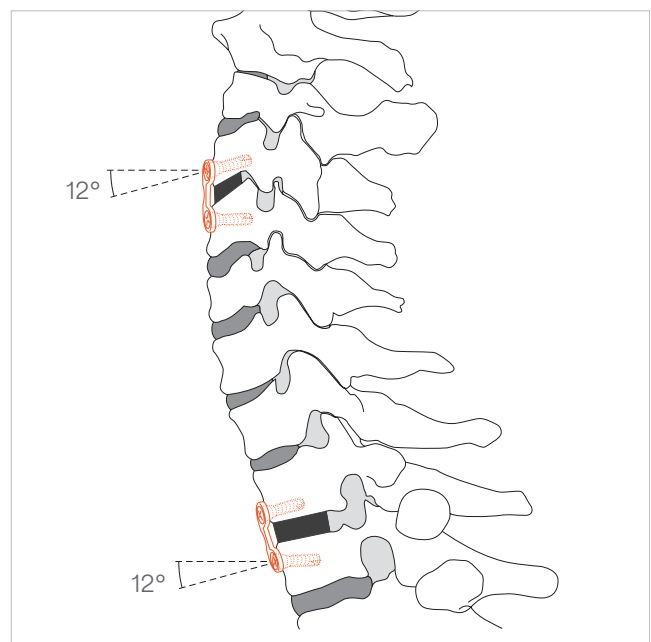
Once the correct plate size has been chosen, the alignment of the plate is determined. The 12° angled screw holes are, as a rule, positioned cranially to allow access to the cranial vertebrae.

▲ Precautions:

- If the plate requires contouring, ensure that the holes remain unaltered. Distorted holes cannot be used for Expansion Head Screws.
- The Bending Pliers (324.065) is recommended to give the Cervical Spine Locking Plate its desired lordotic curvature.

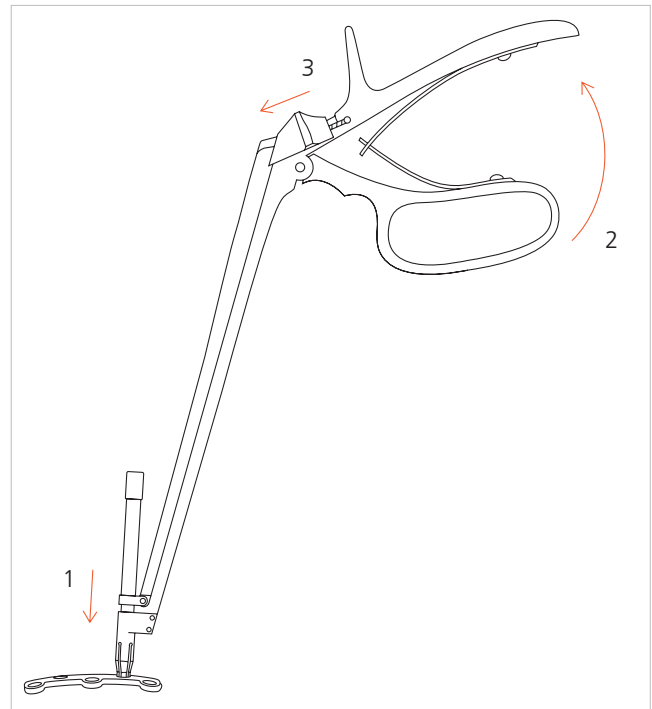
▲ Warning:

- The plate must not be bent backward and forward as this has a weakening effect.



3. Insert Drill Guide

Insert the Drill Guide 3.0 (387.201) into a middle plate hole (1). Choose the correct alignment to hold the plate, press the handle to attach the plate to the drill guide (2) and slide the catch forward to lock the drill guide in its position (3).



4. Position the Plate

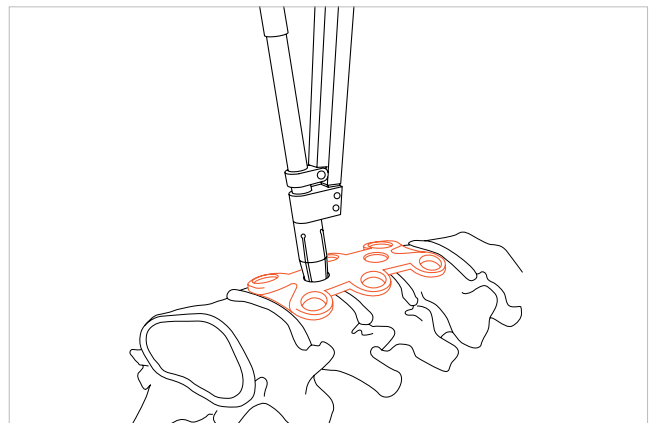
The plate thus attached to the drill guide is inserted into the operating area and aligned.

▲ Precautions:

- Ensure that the screws will remain totally in the vertebral body and will not penetrate the intervertebral discs.
- Make sure there will be enough space between the intact adjacent intervertebral discs and the screws.

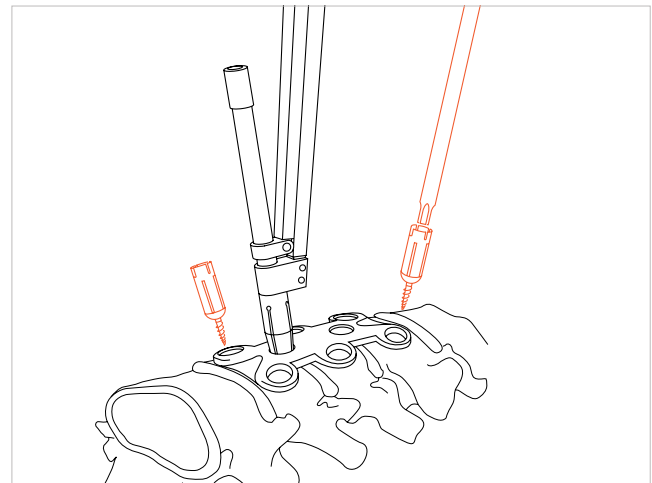
5. Insert Fixation Pins

Using the Self-holding Screwdriver Shaft 4.0/4.35/4.5 (387.281) and Handle (311.430), a Fixation Pin (387.595) is taken from the rack and inserted into one of the cranial plate holes. The proximal end of the handle may be tapped on to facilitate the penetration of the pin into the cortex. Screw the pin into the vertebral body. Insert a second Fixation Pin into the diagonally opposite plate hole and remove the screwdriver and drill guide (additional temporary Fixation Pins may be inserted if desired).



▲ Precaution:

- An image intensifier should be used for a lateral view of the position of the Fixation Pins to indicate the potential positions of the screws.

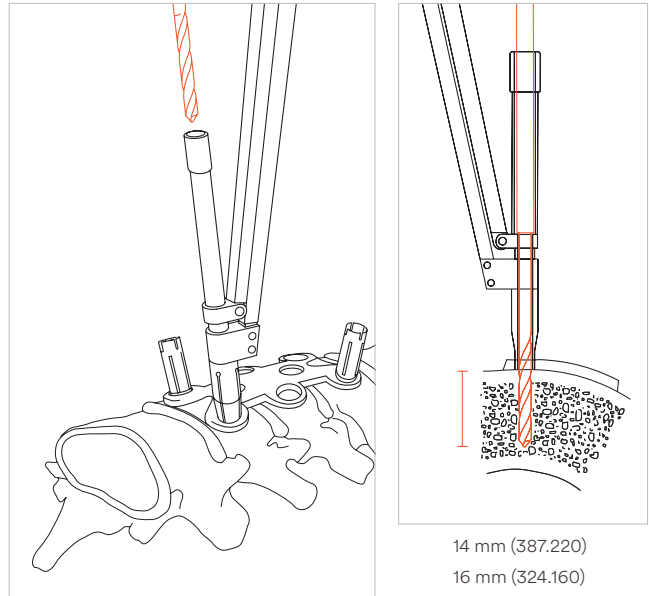


6. Drill Holes for Expansion Head Screws

- For Expansion Head Screws of 14 mm of length, Drill Bit Ø 3.0 mm with Stop (387.220) and Drill Guide 3.0 are used to drill the holes no deeper than 14 mm. For this purpose insert Drill Guide 3.0 in the empty caudal hole. The Drill Guide must sit correctly in the plate hole so the screw head can later be fully sunk into the plate.
- For 16 mm colour-coded screws use the purple colour-marked Drill Bit with Stop (324.160) to drill the holes no deeper than 16 mm.

▲ Precaution:





- During drilling the Drill Guide must sit precisely in the plate hole and the handle must be pressed to achieve a firm hold between the plate and the Drill Guide.



7. Insert the First Expansion Head Screw

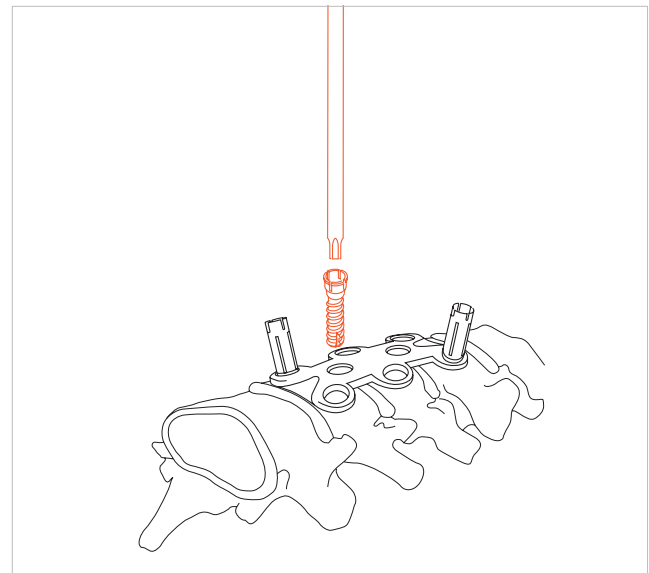
A Self-Tapping Expansion Head Screw appropriate in length and diameter is taken from the screw rack by means of the Self-holding Screwdriver Shaft 4.0/4.35/4.5 (387.281) and inserted at the given angle. The screw must not be fully tightened at first as this could cause the opposite side of the plate to tilt.

Cervical Spine Expansion Head Screws, self-tapping*

Ø 4.0 mm	14 mm	gold	(487.044)	
Ø 4.0 mm	16 mm	violet	(487.046)	
Ø 4.35 mm	14 mm	gold	(487.054)	
Ø 4.35 mm	16 mm	violet	(487.056)	

▲ Warnings:

- For long spans or suboptimal bone quality, the surgeon is urged to consider the nature of such cases whether the longest Self-drilling screw (16 mm) will provide sufficient stability. The treatment may require the use of bicortical anchorage (with Self-tapping screws), and/or posterior fixation for these kinds of inherently unstable cases.
- 4.35 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.



*The Screws are also available sterile packed.
Add suffix "S" to the article number.

8. Insert Remaining Screws

The remaining screws are then inserted likewise, starting with the screw diagonally opposite the first one. The screw holes are prepared as in step 6. Once the second screw is inserted the Fixation Pins are removed. Finally, all screws must be tightened so that the screw heads render a flush plate surface.

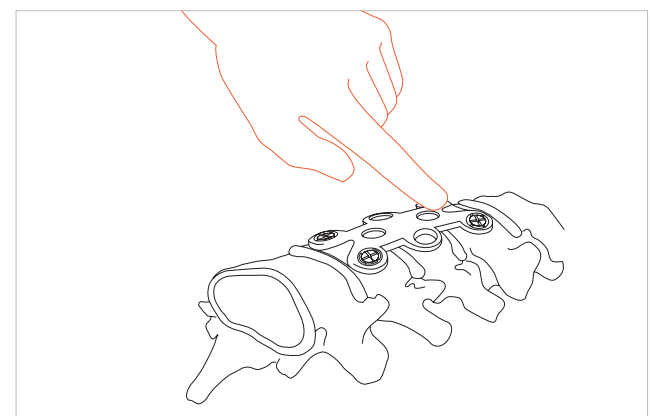
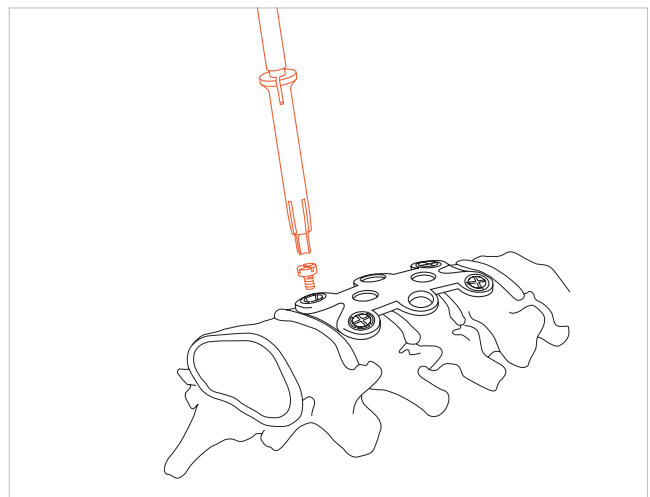
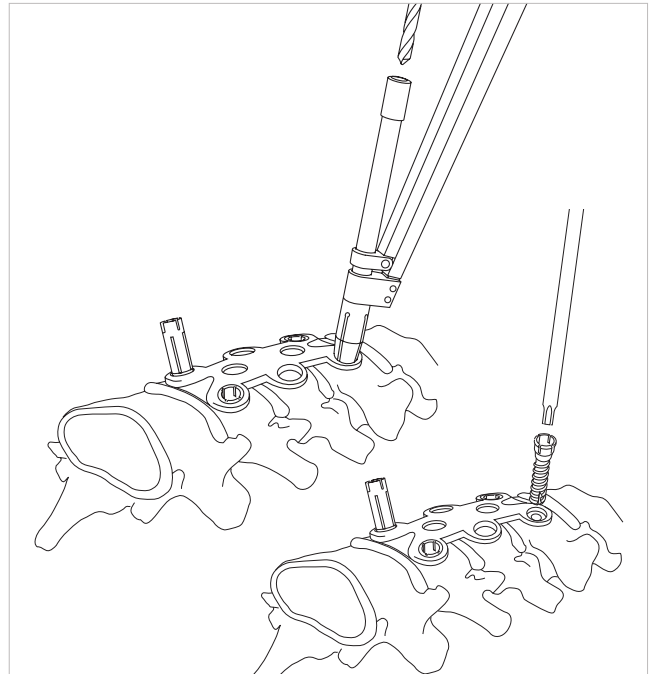
9. Insert Locking Screws

The Locking Screws Ø 1.8 mm (497.780) are then inserted. Using Screwdriver Shaft 1.8 (387.310) and Holding Sleeve (387.320), one locking screw after the other is taken from the screw rack, carefully inserted into the screw heads and firmly tightened.

10. Check Plate Surface

▲ Warning:

- Before closing the incision check with your finger tip that all screws are fully sunk into the plate. A flush surface prevents the soft tissue from being damaged (oesophagus)



Implant Removal

Implant Removal

For implant removal:

- Firstly remove Locking Screw using Screwdriver Shaft 1.8 (387.310).
- Then remove screw using Screwdriver Shaft 4.0/4.35/4.5 (387.281).
- Repeat this for all screws.
- Remove plate.

Implants

Plates

CSLP Plate

Art. No.	Plate length mm
One-level plates	
450.114	22
450.116	24
450.118	26
450.120	28
450.122	30
450.124	32
450.126	34
Two-level plates	
450.228	36
450.231	39
450.234	42
450.237	45
450.240	48
450.243	51
450.246	54
Three-level plates	
450.345	53
450.348	56
450.351	59
450.354	62
450.357	65
450.360	68
450.363	71
450.366	74
450.369	77
Four-level plates	
450.460	68
450.464	72
450.468	76
450.472	80
450.476	84
450.480	88
450.484	92



CSLP narrow plates*

Art. No. Plate length mm

One-level plates

487.212 20

487.213 22

487.214 24

487.215 26

487.222 28

487.223 30

487.224 32

487.225 34



Two-level plates

487.216 34

487.217 36

487.218 38

487.226 40

487.227 42

487.228 45

487.236 48

487.237 51

487.238 54



Three-level plates

487.339 47

487.342 50

487.345 53

487.348 56






487.351 59

487.354 62



*All CSLP narrow plates are available sterile packed. Add suffix "S" to article number.

Screws*

Item number	Description	
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	
487.054	Cervical Spine Expansion Head Screw Ø 4.35 mm, self-tapping, length 14mm, Pure Titanium	
487.056	Cervical Spine Expansion Head Screw Ø 4.35 mm, self-tapping, length 16mm, Pure Titanium, violet	
497.780	Locking Screw Ø 1.8 mm, Pure Titanium	

*The Screws are also available sterile packed. Add suffix "S" to the article number.

Instruments

311.430 Handle with Quick Coupling, length 110 mm



324.065 Bending Pliers for Cervical Spine Locking Plates



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



387.201 Drill Guide 3.0, self-holding, for Cervical Spine Locking Plates



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



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



387.310 Screwdriver Shaft 1.8, cruciform, length 180 mm



387.320 Holding Sleeve, for No. 387.310



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



Indications and Contraindications

Please refer to the corresponding Instructions for Use for specific information on Intended use, Indications, Contraindications, Warnings and Precautions, Potential Adverse Events, Undesirable Side Effects and Residual Risks. Instructions for Use are available at www.e-ifu.com and/or www.depuysynthes.com/ifu.

Bibliography

1. Aebi M, Thalgott JS, Webb JK (1998): AO ASIF Principles in Spine Surgery. Berlin: Springer.
2. Aebi M, Arlet V, Webb JK (2007) AOSPINE Manual (2 vols), Stuttgart, New York: Thieme.

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