Surgical technique and instrumentation

PAT. PEND.

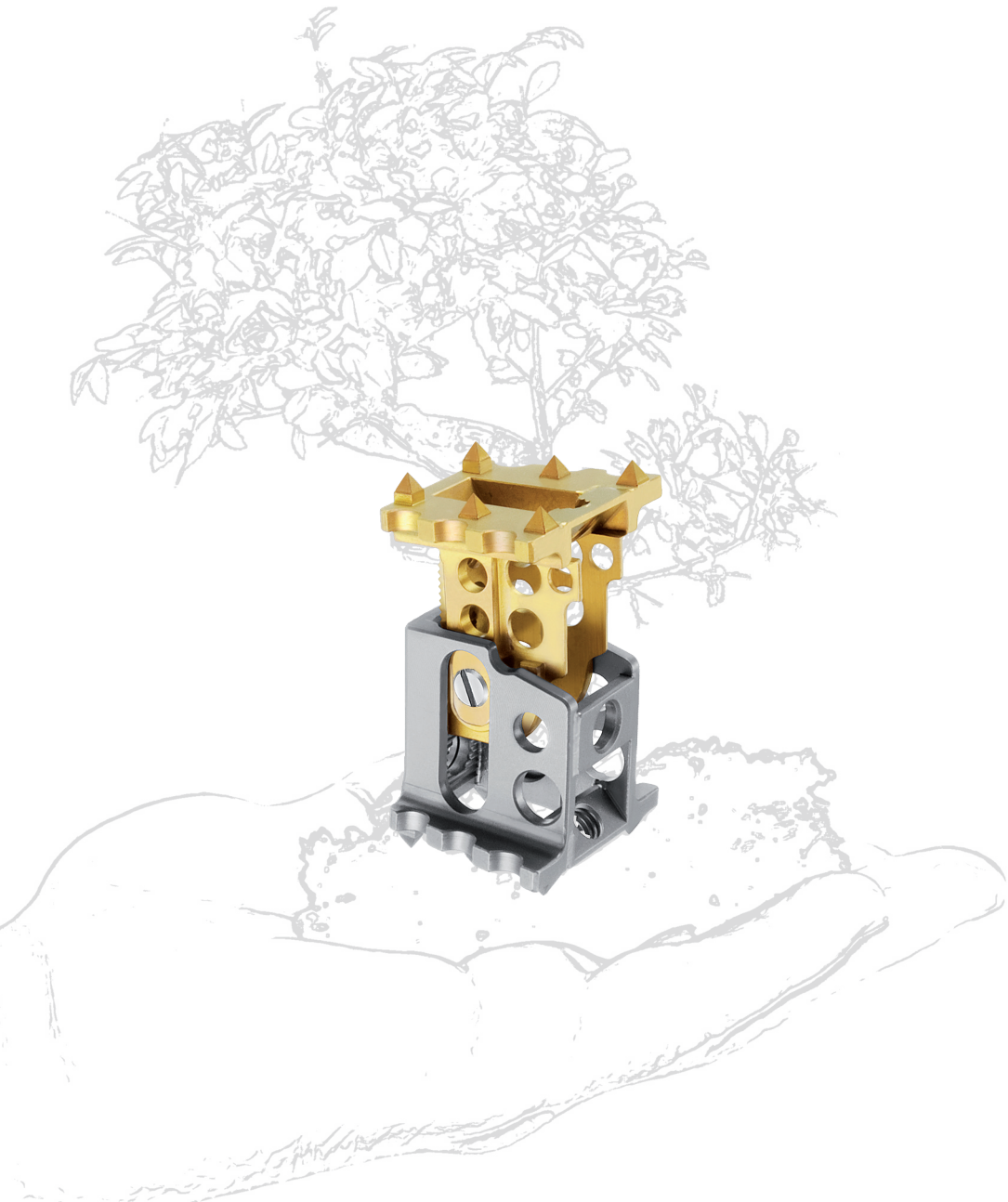
MediExpand Cervical

VERTEBRAL BODY REPLACEMENT

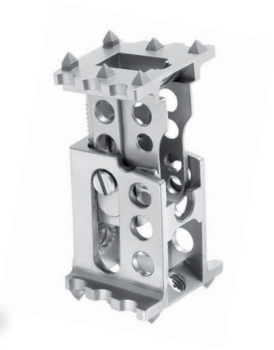
Vertebral body replacement for cervical spine

medicon®

Prior to implantation please consult our instructions of use G588162.



Version 1.01



Expandable vertebral body replacement "MediExpand"-Cervical was developped in cooperation with **Dr. med. Heinrich Böhm**, Zentralklinik Bad Berka GmbH, for reconstruction of the cervical spine after partial or complete corpectomy.

MediExpand Cervical

VERTEBRAL BODY REPLACEMENT

OPEN DESIGN

- Excellent visibility of the dura during insertion
- Direct access areas for freshening unaffected endplate areas
- Optimal space for filling up with spongiosa
- Large area for bony fusion

GUIDE-RAIL PRINCIPLE

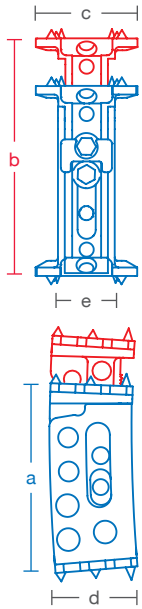
- Continuously expandable
- Easy repositioning of the implant via reversing the distraction
- Exact height adjustments
- Appropriate for two-level or three-level corpectomies
- The anatomical design provides the reconstruction of the lordotic profile

RECTANGULARY SHAPED PLATFORM

- Secure support in stable areas close to uncus
- Prevents sinking into neighboring vertebral bodies
- Secure anchoring into the adjoining endplates

Vertebral body replacement for cervical spine

	a	b	c	d	e
58.81.60	16,5 mm	21,0 mm	18,0 mm	12,5 mm	10,0 mm
58.81.62	19,0 mm	25,0 mm	18,0 mm	14,5 mm	10,0 mm
58.81.64	23,0 mm	30,0 mm	18,0 mm	14,5 mm	10,0 mm
58.81.66	28,0 mm	36,0 mm	18,0 mm	14,5 mm	10,0 mm
58.81.68	33,0 mm	41,0 mm	18,0 mm	14,5 mm	10,0 mm
58.81.70	38,0 mm	46,0 mm	18,0 mm	14,5 mm	10,0 mm
58.81.72	43,0 mm	51,0 mm	18,0 mm	14,5 mm	10,0 mm
58.81.74	48,0 mm	56,0 mm	18,0 mm	14,5 mm	10,0 mm

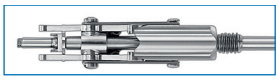


Implant tray
(without implants and tools)

58.82.00

25,4 x 24 x 9,6 cm

Spreader
for inserting vertebral body replacement



	58.81.80	for 58.81.60
	58.81.81	for 58.81.62
	58.81.82	for 58.81.64
	58.81.87	for 58.81.66/ 68/ 70/ 72/ 74

T-handle for spreader

58.81.88

Counterholder

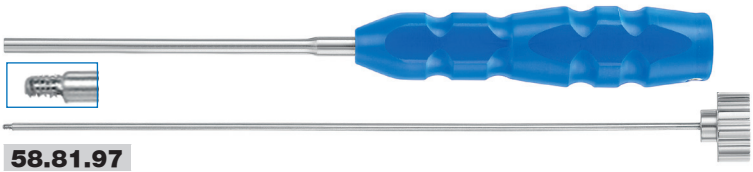
58.81.91 for 58.81.60
(with color coding)

58.81.90 for 58.81.62 to 58.81.74
(without color coding)

Freshening instrument
for 58.81.94

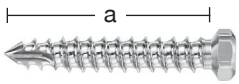
58.81.98

Screwdriver for anchor screws



58.81.97

Anchor screws (self-tapping)



Ø 2,7 mm

a = 13 mm	**58.81.77**
a = 15 mm	**58.81.78**
a = 17 mm	**58.81.79**

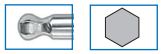
P 2 Packing unit 2 pieces

Awl / reamer for
anchor screws for 58.81.94

58.81.93

Screwdriver insert
for 58.81.94 and 58.81.96

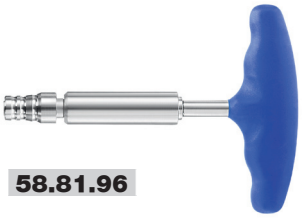
58.81.92



Handle with quick coupling
for 58.81.92
for 58.81.93
for 58.81.80 to 58.81.87
for 58.81.98

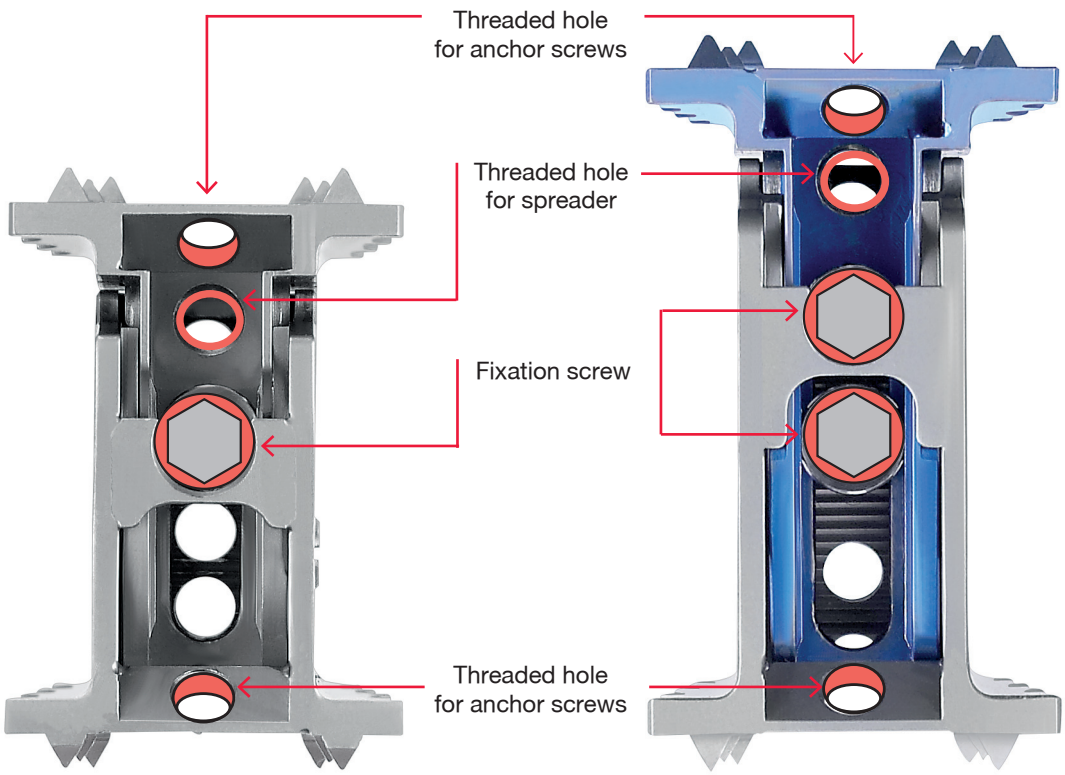
58.81.94

Torque wrench with
quick coupling for 58.81.92



58.81.96

1. Structure of the vertebral body replacement



1 Fixation srew	58.81.60
	58.81.62
	58.81.64
2 Fixation screws	58.81.66
	58.81.68
	58.81.70
	58.81.72
	58.81.74

2. Preparing the operating field

The vertebral body replacement “MediExpand”-Cervical is used to produce spinal fusion (spondylodesis) in surgeries (single or multiple segment fusion) on degenerative, tumorous and traumatic vertebral body damage.

Through accessing the cervical spine ventrally, the discectomy or spondylectomy can be carried out with as little spreading of the adjoining vertebral bodies as possible. The appropriate vertebral body replacement will be selected according to the the intervertebral space height.

3. Preparing the instruments

Screwdriver insert 58.81.92

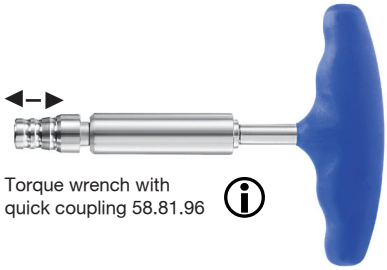
+

Handle with quick coupling 58.81.94

3.1 In preparation for the fixing procedure (point 7), both parts (first screwdriver blade and handle) are assembled.

Screwdriver insert 58.81.92

+



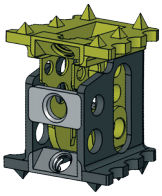
Torque wrench with quick coupling 58.81.96

3.2 In preparation for the final fixing procedure (point 8), both parts (second screwdriver blade and torque wrench) are assembled.

4. Picking up the items

The color of the vertebral body replacement corresponds to the color of the spreader!

The red ring defines the maximum length of extention!



58.81.62

		Aufspreizer mit Farbmarkierung
58.81.60		58.81.80
58.81.62		58.81.81
58.81.64		58.81.82
58.81.66		58.81.87
58.81.68		
58.81.70		
58.81.72		
58.81.74		

Spreader 58.81.81

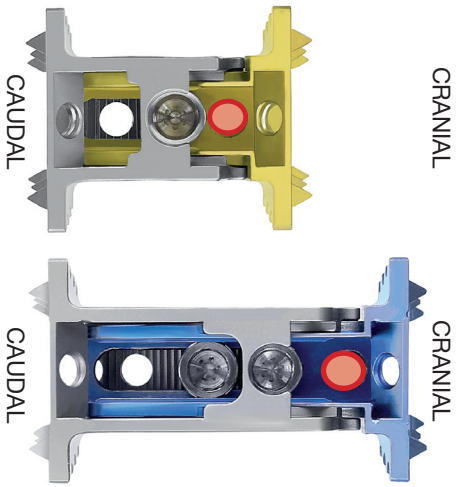
Handle with quick coupling 58.81.94

The vertebral body replacement can be loaded using the correctly colored spreader straight from the tray.

The spreader is inserted into the corresponding inner side (color-coded) of the vertebral body replacement and screwed into the threaded hole.

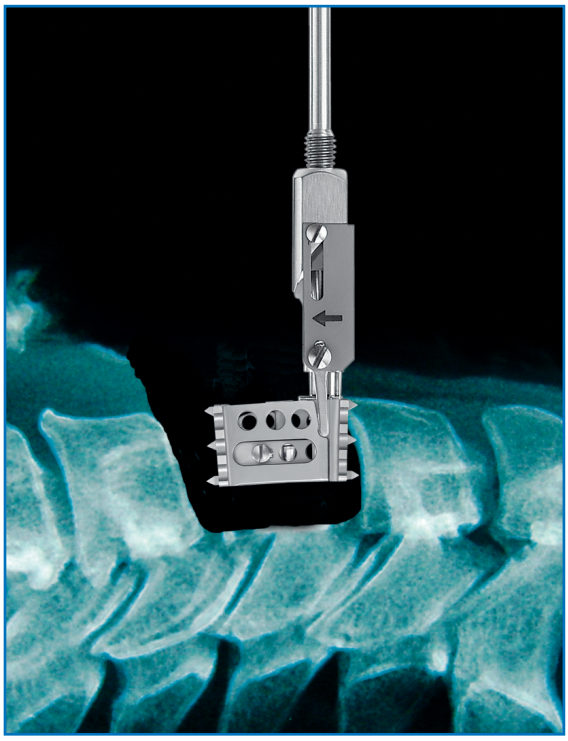
For the insertion of the vertebral body replacement the handle 58.81.94 can be combined with the spreader 58.81.81

The arrow on the spreader shows the direction to spread (caudal direction).



Threaded hole for spreader

5. Insertion



After the corpectomy:

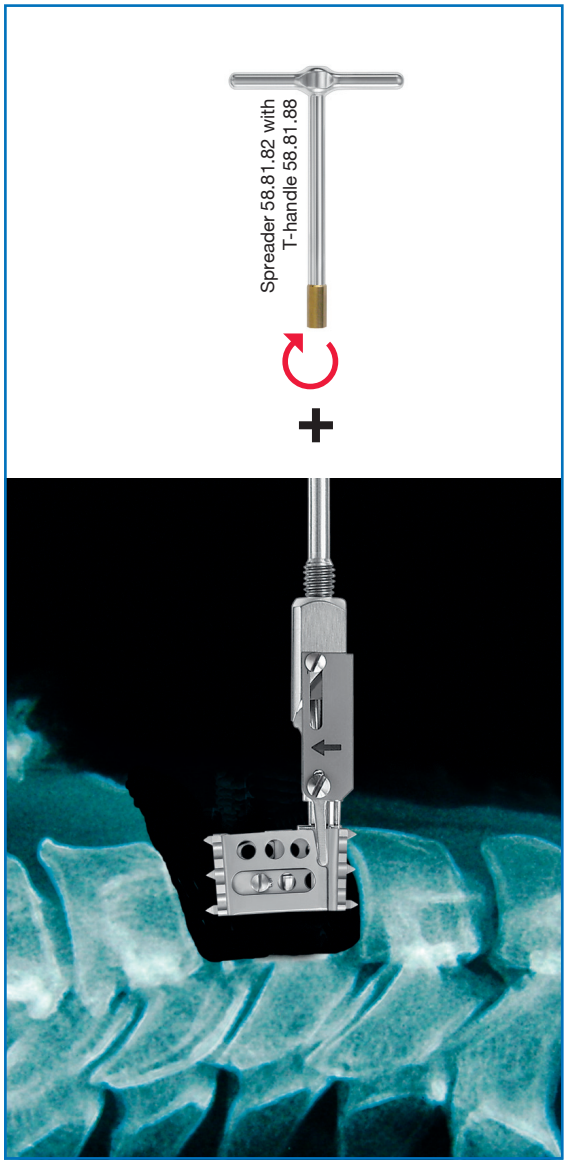
The vertebral body is put in position by sight, and then checked using an x-ray.

The spreader helps to ease the vertebral body into position.

Alternatively the quick lock handle (58.81.94) can be utilized in connection with the spreader for the pick up and the insertion of the vertebral body replacement.

After the insertion of the implant the quick lock handle has to be removed in order to continue with step 6 (Extension of the implant by means T-Handle).

6. Expansion

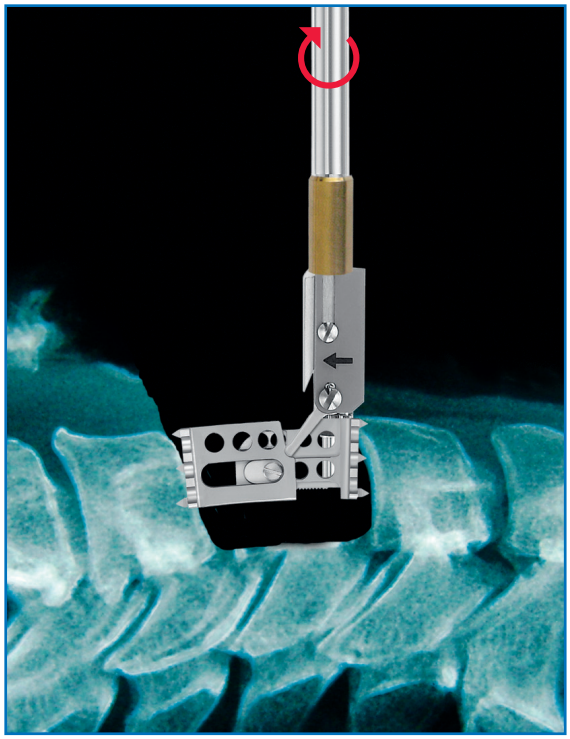


“MediExpand”-Cervical in its normal condition

The T-handle is placed on the spreader and screwed clockwise into the thread until resistance can be felt.

By continuing to screw the T-handle to the right, the vertebral body replacement will be smoothly expanded in situ. After that, a lateral verification x-ray will be performed.

The different implant sizes offer expansion between 4.5 mm and 8.0 mm.



“MediExpand”-Cervical in its expanded condition

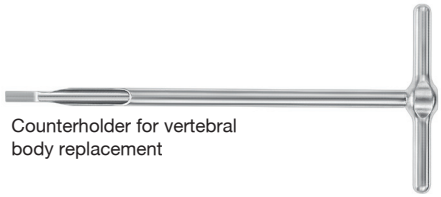
The T-handle and the spreader must not be removed once the vertebral body replacement has been expanded!

7. Provisional fixing and loosening of the screw (temporary locking)

Screwdriver insert 58.81.92

Handle with quick coupling 58.81.94

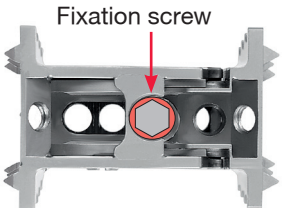
In preparation, both parts (first screwdriver blade and handle) are assembled. (see point 3.1)



Counterholder for vertebral body replacement

The counterholder prevents torque being transferred to the cervical spine. It is placed in the available space in the vertebral body replacement.
(Counterholder 58.81.91 for “MediExpand”-Cervical 58.81.60 and Counterholder 58.81.90 for “MediExpand”-Cervical 58.81.62 - 58.81.72)

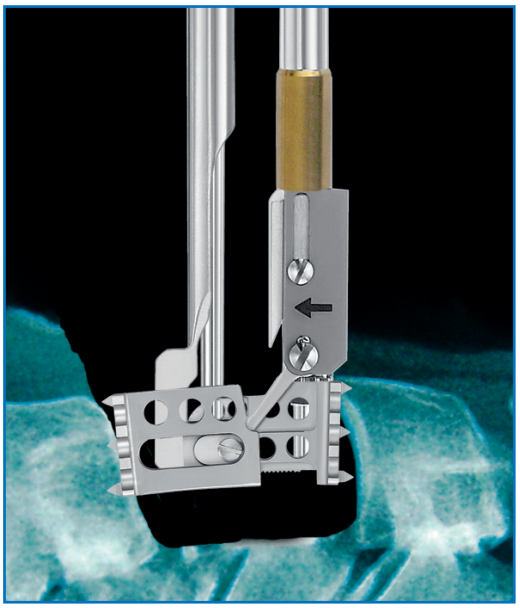
The completed screwdriver is placed in the counterholder until the surgeon feels the hexagonal head firmly in position in the fixation screw.



The fixation screw must be screwed tightly into place with about one rotation!
When the screw has to be loosened again to correct the level of spreading, the screw must be turned back by one rotation.

“MediExpand”-Cervical implants for vertebral body replacements have either one or two fixation screws, depending on the size of the model. (see point 1. Structure of the vertebral body replacement)

At the point of delivery the fixation screw is secured. It must not be turned in situ until the vertebral body replacement is permanently fixed into place!

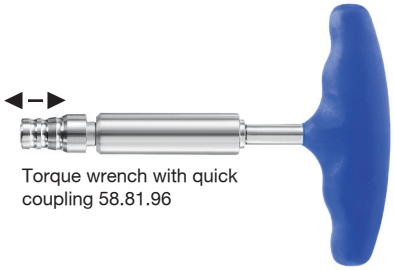


To fix the vertebral body replacement permanently in position (see point 8), the screwdriver is taken out of the counterholder and a verification x-ray is performed to make sure the vertebral body replacement is in the correct position.

8. Final fixation (locking)

Screwdriver insert 58.81.92

+



Torque wrench with quick coupling 58.81.96

In preparation, both parts (second screwdriver blade and torque wrench) are assembled. (see point 3.2)

The completed torque wrench is placed in the counterholder until the surgeon feels the hexagonal head firmly in position in the fixation screw.

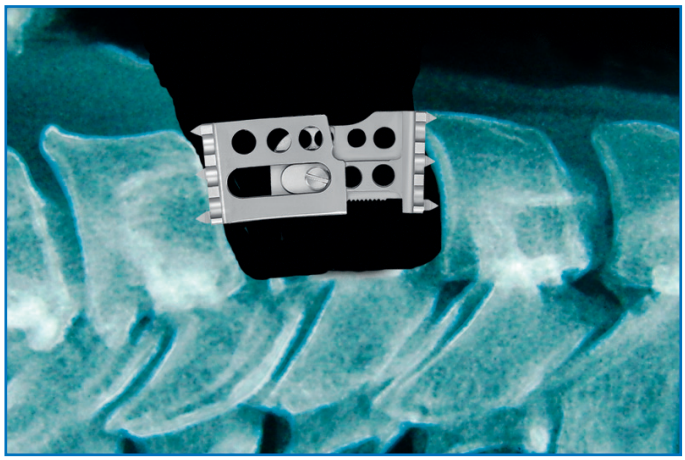
Only by using the torque wrench the fixation screw is finally tightened.

The tightening torque is set to 1.6 Nm.

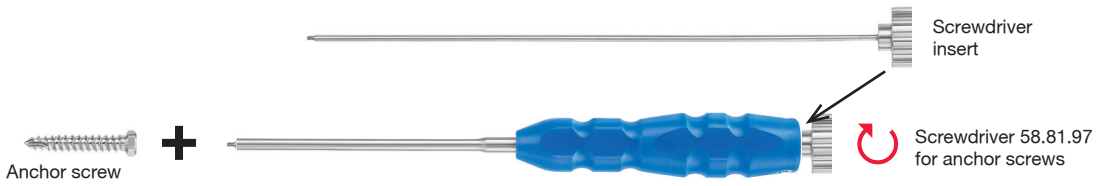
Once the maximum torque is reached, a click will be heard. The screw is now securely in position, and the implant has been locked.

The torque wrench must not be used to loosen the screw!

After removing the insertion instruments, an x-ray is performed to check that the vertebral body replacement is in the correct position.



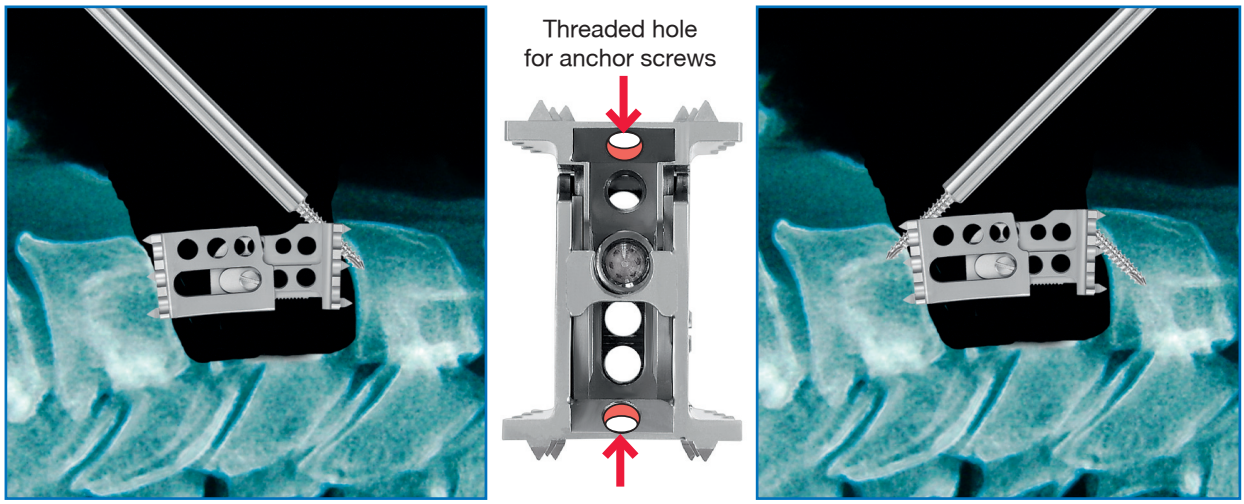
9. Anchoring (part 1)



In preparation for securely anchoring the vertebral body replacement to the neighboring vertebral bodies, the insert must be placed in the screwdriver.

After ascertaining the required size of the anchor screw, it can be loaded straight from the tray. In addition, the inner hexagonal socket of the completed screwdriver is placed on the screw head. Then, the insert is screwed clockwise into the inner thread of the screw (not visible to the eye), thereby creating a firm connection.

After checking that the vertebral body replacement is in the correct position using an x-ray, both anchor screws are screwed into the adjoining endplates of the neighboring vertebral bodies through the threaded holes.



9. Anchoring (part 2)

Awl / reamer for anchor screws for handle 58.81.94

Handle with quick coupling 58.81.94

For tough cortical bone, it is recommended to pre-drill with a 58.81.93 awl/reamer for anchor screws - along with the handle with quick coupling 58.81.94.
Alternatively, a 2 mm standard drill can be used.
An angle of 45° must be maintained.

A final check, using an x-ray, must be carried out to ensure that the vertebral body replacement is firmly and correctly in position.

After implantation, the endplates on the neighboring vertebrae must be freshened in situ.

Freshening instrument 58.81.98

Handle with quick coupling 58.81.94

The vertebral body replacement must be filled with a sufficient quantity of bone or bone replacement material.

Product documents and OP courses

MediExpand Cervical
VERTEBRAL BODY REPLACEMENT

- Brochure 451.04.60

- Visual product presentation on CD-ROM

- Surgical technique 451.04.18

- MediconCourses

The course content concentrates mainly on issues regarding the spinal column.

The course syllabus includes discussions of theory, and intensive practical exercises on the human apparatus.

We will be pleased to tell you about our course syllabus.

SPINE SURGERY

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451.04.18