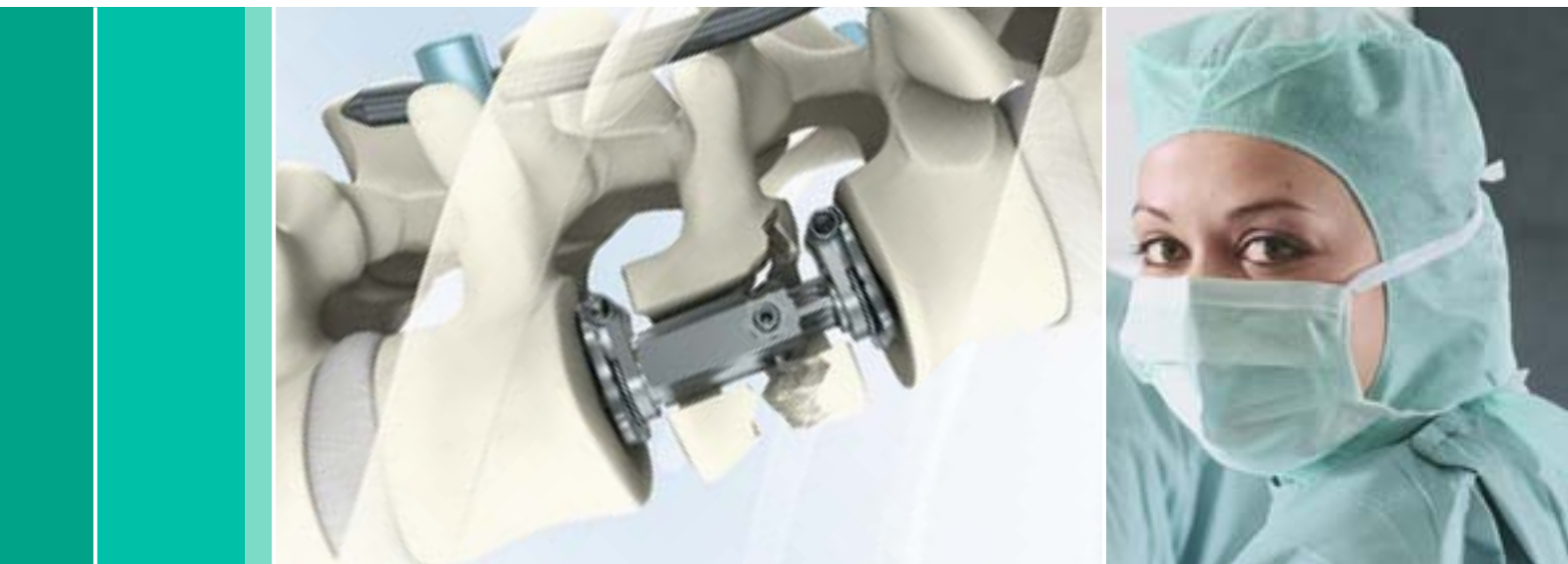


# Aesculap® Spinal Fracture Management

Thoracolumbar Spine

S4® FRI – Hydrolift® – MACS TL®



Aesculap Spine

# Spinal Fracture Management

## Concept

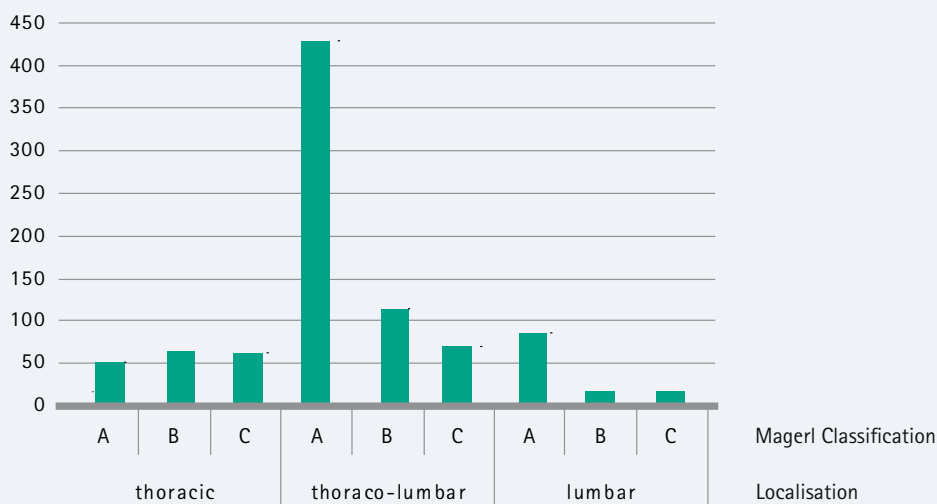
Surgical techniques for the treatment of thoracolumbar spinal fractures have been refined in the last 10 years. Novel less invasive approach techniques, optimized instruments and advanced implants have improved the possibilities for patients with spinal trauma.

Most spinal trauma injuries occur in the thoracolumbar junction. The transition from thoracic kyphosis to lumbar lordosis and the more sagittal orientation of the facet joints make this spinal section more susceptible to any tensile and compressive forces. With unstable fractures or in presence of neurological deficits surgical treatment is indicated

from posterior, ventral or in a combined approach, depending on the type of fracture.

Different instruments and implants are required to treat the different fractures. Thus, Aesculap offers a complete treatment concept for spinal fracture management.

### Fracture Localisation and Fracture Type



\* Based on the publication of Reinhold M, Knop C, Beisse R, Audigé L, Kandziara F, Pizanis A, Pranzl R, Gercek E, Schultheiss M, Weckbach A, Bühren V, Blauth M. Operative treatment of traumatic fractures of the thoracic and lumbar spinal column. Part I: Epidemiology. Unfallchirurg. 2009; 112: 33-45

## S<sup>4</sup> CS – for minimally invasive surgery



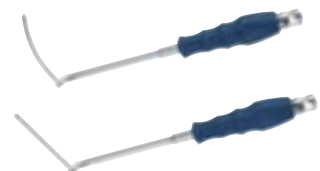
### Cannulated Screws

- Poly- and monoaxial screws
- Polyaxial screws with 42° ROM
- 4.5 mm – 8.5 mm diameter in 1 mm increments
- Optimized screw design for less invasive surgery techniques



### Rods

- Hexagonal connection for safe rod manipulation
- Conical tip for submuscular insertion
- Straight and prebent rods with 5.5 mm diameter
- 35 – 200 mm length



### Cannulated instruments

- Proven instruments – adapted for use with cannulated screws
- Colour coded cannulated screw tabs for ease of use



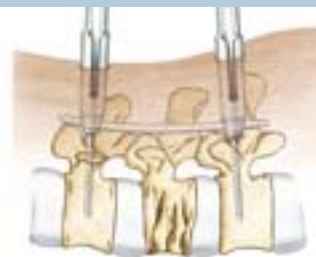
# CS





## S<sup>4</sup> FRI – Fracture Reduction Instrumentation

- With its special designed instrumentation, the S<sup>4</sup> Spinal System offers excellent fracture reduction possibilities.
- The S<sup>4</sup> FRI allows fracture reduction functions in three directions, either individually or in combination:
  - Distraction
  - Compression
  - Restoration of the original lordosis
- Modular distraction can be carried out with the distraction forceps or in very small increments by utilising the set wheel.
- The entire procedure can be performed open or percutaneously.



FRI



## Hydrolift



- The Hydrolift is the latest generation of vertebral body replacement systems designed for the thoracolumbar spine.
- The hydraulic continuous distraction offers a very exact and safe height adaptation of the implant.
- Endplates are freely adaptable in-situ for a perfect adjustment to the individual lordosis or kyphosis angles.
- With an optimal fit of the endplates and the secure hydraulic distraction, the danger of breaking into the adjacent vertebral bodies is reduced.
- The system supports an open or thoracoscopic implantation technique.
- Pre-assembled implants allow a time-saving implantation process.
- 360° pivotable endplates allow the biggest possible flexibility for the approach (anterior, anterolateral as well as posterior and posterolateral approach for implantation heights > 29 mm with endplates rotated by 90°).
- Plasmapore coated endplates guarantee bony fusion and a very high secondary fixation.



# Hydrolift



## MACS TL



- The ventral stabilization system MACS TL offers a safe and easy instrumentation for an endoscopic, minimally-invasive and open approach.
- Due to its angle rigid design, the system combines a high biomechanical stability with the safety of monocortical screws.
- The four point fixation of the implant offers a highly stable construct.
- The polyaxiality of the posterior screws ensures an optimal fit of the implant (angulation of  $\pm 15^\circ$ ).
- With the low profile design of the implant (< 10 mm) soft tissue irritations are reduced.



MACS TL



S<sup>4</sup> CS



S<sup>4</sup> FRI



Hydrolift



MACS TL



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