Thoracolumbar Anterior Compression (TAC) System. Allows distraction, compression, and lateral fixation of the lower thoracic and lumbar spine.
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The Thoracolumbar Anterior Compression (TAC) System is designed to provide internal fixation for the thoracolumbar spine in cases of trauma, tumor or deformity. The system construct consists of two or more staples, available in various sizes and orientation, which were designed for use with the following Synthes screw/rod systems:

- Pangea Monoaxial Screw Implant and Instrument Set
- Click’X Monoaxial Instrument and Titanium Screw and Hook Implant Set
- Dual-Opening Universal Spine System (USS) Instrument and Titanium Implant Set
- USS Hook and Screw Instrument Set
- Small Stature USS Instrument and Titanium Implant Set

The TAC System allows distraction and compression of the anterior column while also providing lateral fixation to promote fusion during the healing process.
**Staples**
- Prong design that limits splitting or shearing of vertebral body and prevents lift-off during screw insertion
- Screw holes accommodate all Synthes monoaxial screw systems
- Threaded guide holes for easy impactor attachment and detachment
- Suitable for hemi-corpectomies or avoidance of pedicle screws
- Contoured to better fit the vertebral body’s anatomy
- Made of Ti-6Al-7Nb alloy

### Hole orientation options (available for each size)

- **Superior**
- **Inferior**
- **Parallel**

### Staple sizes

<table>
<thead>
<tr>
<th>Color</th>
<th>Hole Dia. (mm)</th>
<th>Width (mm)</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purple</td>
<td>5.2</td>
<td>15.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Blue</td>
<td>6.2</td>
<td>16.5</td>
<td>23.0</td>
</tr>
<tr>
<td>Green</td>
<td>7.0</td>
<td>18.0</td>
<td>25.0</td>
</tr>
</tbody>
</table>

*Suitable for hemi-corpectomies or avoidance of pedicle screws.
Rods and screws
A key feature of the TAC System is its versatility in accommodating a variety of existing Synthes monoaxial screw systems. This allows surgeons the flexibility to choose a screw system based on mechanical requirements, technique preference, and/or indication.

All rods are made from titanium and are typically 6.0 mm in diameter (rods used in Small Stature USS are 5.0 mm). Rods are available in various lengths and forms (straight or curved) depending on the screw system.
The various screw systems that TAC accommodates provide several options for rod insertion, rod capture, and overall construct profile:

<table>
<thead>
<tr>
<th>Synthes System</th>
<th>Rod Dia. (mm)</th>
<th>Rod Insertion</th>
<th>Rod Capture</th>
<th>Minimum Profile with TAC (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pangea Monoaxial Screw Implant and Instrument Set</td>
<td>6.0</td>
<td>top-loading</td>
<td>Quarter-turn locking cap</td>
<td>14</td>
</tr>
<tr>
<td>Click‘X Monoaxial</td>
<td>6.0</td>
<td>top-loading</td>
<td>Threaded locking cap</td>
<td>15</td>
</tr>
<tr>
<td>Dual Opening USS</td>
<td>6.0</td>
<td>side-loading (either side)</td>
<td>Collars and nuts</td>
<td>14</td>
</tr>
<tr>
<td>USS</td>
<td>6.0</td>
<td>side-loading (one side only)</td>
<td>Collars and nuts</td>
<td>16</td>
</tr>
<tr>
<td>Small Stature USS</td>
<td>5.0</td>
<td>side-loading (either side)</td>
<td>Collars and nuts</td>
<td>12.5</td>
</tr>
</tbody>
</table>
In 1958, the AO formulated four basic principles, which have become the guidelines for internal fixation. They are:

- Anatomical reduction
- Stable internal fixation
- Preservation of blood supply
- Early, active mobilization

The fundamental aims of fracture treatment in the limbs and fusion of the spine are the same. A specific goal in the spine is returning as much function as possible to the injured neural elements.

**AO Principles as Applied to the Spine**

**Anatomical alignment**
Restoration of normal spinal alignment to improve the biomechanics of the spine.

**Stable internal fixation**
Stabilization of the spinal segment to promote bony fusion.

**Preservation of blood supply**
Creation of an optimal environment for fusion.

**Early, active mobilization**
Minimized damage to the spinal vasculature, dura, and neural elements, which may contribute to pain reduction and improved function for the patient.

2. Ibid.
Indications

The TAC System, when used in skeletally mature patients, is intended for anterolateral stabilization of the thoracolumbar spine (T8–L5) for:

– Trauma fracture, dislocation, or subluxation
– Tumor
– Correction of anterolateral lordotic deformities
– Lumbar scoliosis
– Pseudoarthrosis
Insert Staples

1 Determine staple size and hole orientation

**Instruments**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.660.002</td>
<td>Template for 5.2 mm Staples</td>
</tr>
<tr>
<td>03.660.004</td>
<td>Template for 6.2 mm Staples</td>
</tr>
<tr>
<td>03.660.006</td>
<td>Template for 7.0 mm Staples</td>
</tr>
</tbody>
</table>

Align each template to the staple site to determine which staple size and hole orientation is most suitable.

**Note:** the colored ring on each template handle designates the corresponding staple size.

5.2 mm staples—purple
6.2 mm staples—blue
7.0 mm staples—green

2 Assemble impactor

**Instrument**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.650.000</td>
<td>Staple Impactor</td>
</tr>
</tbody>
</table>

Assemble the staple impactor by sliding the threaded impactor shaft into the cannulated handle and turning the impactor knob clockwise.
3  
Capture staple

Align the staple impactor with the chosen staple by inserting the nonthreaded post at the bottom end of the impactor into the nonthreaded guide hole. Turn the impactor knob clockwise to insert the threaded shaft into the threaded staple hole to capture the staple.

4  
Seat staple

Drive the staple prongs through the cortical bone of the vertebral body and seat the staple by striking the staple impactor with a small mallet. Once prong insertion is maximized, remove the staple impactor by turning the impactor knob counterclockwise.

Repeat steps 1–4 to implant additional staple(s).
The TAC System can accommodate a variety of Synthes monoaxial screws. Surgeon preference will determine which Synthes screw system will be used:

01.622.420 Pangea Monoaxial Screw Implant and Instrument Set
145.296 Click’X Monoaxial Screw and Hook Instrument and Titanium Implant Set
145.127 Dual Opening USS Instrument and Titanium Implant Set
107.751 Titanium USS Screw Introduction Set
107.721 USS Rod Instrument Set
107.731 USS Hook and Screw Instrument Set
145.121 Small Stature USS Instrument and Titanium Implant Set

The implants, instruments, and techniques used for screw insertion, rod assembly, and final tightening of the TAC construct will be the same as specified in the technique guide for each individual system, with the exception that screws will be inserted through the staple holes laterally on the vertebral body instead of through the pedicles. Please refer to the technique guide that corresponds to the selected screw system for further details on construct assembly.
Instruments

03.650.000  Staple Impactor
Used to hold, drive, and seat staple into vertebral body.

03.660.002  Template, for 5.2 mm Titanium Staples
03.660.004  Template, for 6.2 mm Titanium Staples
03.660.006  Template, for 7.0 mm Titanium Staples
Used to determine appropriate staple size and hole orientation.
Can also be used for osteotomies.
Thoracolumbar Anterior Compression System Instrument and Titanium Implant Set (01.160.210)

Graphic Cases
690.150 Graphic Case, for 5.2 mm–7.0 mm Staples and Impactor Set
304.050 Module for 5.2 mm–7.0 mm Staples

Implants
Titanium Parallel Staples, 2 ea.
04.650.001 5.2 mm
04.650.002 6.2 mm
04.650.003 7.0 mm

Titanium Inferior Staples, 2 ea.
04.650.011 5.2 mm
04.650.012 6.2 mm
04.650.013 7.0 mm

Titanium Superior Staples, 2 ea.
04.650.021 5.2 mm
04.650.022 6.2 mm
04.650.023 7.0 mm

Instruments
03.650.000 Staple Impactor, 2 ea.

Templates for Titanium Staples
03.660.002 5.2 mm
03.660.004 6.2 mm
03.660.006 7.0 mm

Also Available
391.990 Plate/Rod Cutter

Note: The Module for 5.2 mm–7.0 mm Staples (304.050) can also be placed in the Graphic Case, for Click’X Monoaxial Rod and Connector Set (690.153).

Sterilization Parameters for Set (01.160.210)
This Synthes set with all additionally available items, as marked in the case, can be sterilized by the following parameters. For more information, please refer to graphic case package insert.

<table>
<thead>
<tr>
<th>Method</th>
<th>Cycle</th>
<th>Temperature</th>
<th>Exposure Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam</td>
<td>Prevacuum (Wrapped)</td>
<td>132°–135°C (270°–275°F)</td>
<td>8 Minutes</td>
</tr>
<tr>
<td>Steam</td>
<td>Gravity Displacement (Wrapped)</td>
<td>132°–135°C (270°–275°F)</td>
<td>15 Minutes</td>
</tr>
</tbody>
</table>