Percutaneous Endoscopic Lumbar Discectomy (PELD) and Other Thoracic and Lumbar Spinal Procedures with the SpineTIP System

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SpineTIP – Percutaneous Endoscopic Lumbar and Thoracic System

Introduction

The SpineTIP System covers a broad operative spectrum for treating disc herniations in the lumbar and thoracic regions. The application of these systems and techniques in lumbar spine surgery is often described by the term Percutaneous Endoscopic Lumbar Discectomy (PELD).

The system can be extended to the treatment of other spinal pathologies such as spondylodiscitis, psoas abscesses and spinal tumors.

Endoscopic systems that combine a high-resolution telescope, a light source as well as working and irrigation channels in one instrument make it possible to perform minimally invasive interventions via a single port under excellent visual control.

SpineTIP stands for 3 fundamental percutaneous endoscopic approaches:

- Transforaminal
- Interlaminar
- Posterolateral

Access-specific telescopes and instruments were developed to optimize the range of applications, making it easy for the user to perform various techniques with the utmost quality while being geared towards specific pathologies. The posterolateral system is particularly suitable for treating pre-, intra- and extraforaminal herniated discs in the lumbar and thoracic regions (foraminoscope). At the same time, it allows a subtle exploration of the exiting nerve root in a particular segment without having to expand the working area.

The system can also be used for intradiscal procedures or endoscopically controlled rhizotomy at the facet joint, if required.

The new, longer transforaminal endoscope also enables successful operation on obese patients with central and mediolateral herniated discs without experiencing the typical problems associated with open procedures.

In contrast, the shorter system with a similar design is used for the interlaminar approach using special supplementary instruments, e.g., punches, particularly in the L5/S1 region. The use of manually or motor-driven burrs can widen the range of application. The “red system” is now often viewed as a bridge to spinal endoscopy.
SpineTIP – Percutaneous Endoscopic Lumbar Approaches

**Transforaminal Approach**

25°
25.5 cm

[Image of transforaminal approach with diagrams and text labels]

**Interlaminar Approach**

25°
18 cm

[Image of interlaminar approach with diagrams and text labels]

**Posterolateral Approach**

15°
18 cm

[Image of posterolateral approach with diagrams and text labels]
• Specially developed for the treatment of medial and/or central disc herniation
• Angle of view 25° upwards: Allows optimal visualization of critical structures
• Telescope particularly suitable for adipose patients
• Outer diameter with sheath 7.8 mm
• Working channel for instruments with a diameter of 3.5 mm

• Particularly suitable for the treatment of mediolateral disc herniation on level L5 – S1 in cases where the iliac crest does not permit a lateral approach
• 25° angle of view upwards allows optimal visualization of the site
• Outer diameter with sheath 7.9 mm
• Working channel for instruments with a diameter of 3.5 mm

• Particularly suitable for the treatment of intra- and extra-foraminal disc herniation
• The 15° angle of view forwards allows visualization of the exiting nerve root
• Optimized, slender design (diameter 6.1 mm) adapted to oblique working angle in the foramen
• Outer diameter with sheath 6.9 mm
• Working channel for instruments with a diameter of 2.8 mm
Operating Sheaths

The operating sheaths are optimized for the various surgical approaches and the anatomical structures of the surgical site. The gradual and accurate positioning of the puncture needle, guide wire and dilation sleeve allows the operating sheath to be defined as an optimal approach. The corresponding color-coded endoscope is then inserted through this port.

28163 TSG  Operating Sheath, graduated, distal straight, integrated irrigation connector, inner diameter 6.8 mm, outer diameter 7.8 mm, length 25 cm, for use with HOPKINS® Telescope 25° 28163 BTA, color code: blue

28163 TSN  Operating Sheath, graduated, with distal beak, integrated irrigation connector, inner diameter 6.8 mm, outer diameter 7.8 mm, length 25 cm, for use with HOPKINS® Telescope 25° 28163 BTA, color code: blue

28163 TSW  Operating Sheath, graduated, distal oblique, integrated irrigation connector, inner diameter 6.8 mm, outer diameter 7.8 mm, length 25 cm, for use with HOPKINS® Telescope 25° 28163 BTA, color code: blue
28163 FSG  Operating Sheath, graduated, distal straight, with clamp mechanism for fixation, integrated irrigation connector, inner diameter 7.2 mm, outer diameter 7.9 mm, length 17 cm, for use with HOPKINS® Telescope 25° 28163 BFA, color code: red

28163 FSN  Operating Sheath, graduated, with distal beak, with clamp mechanism for fixation, integrated irrigation connector, inner diameter 7.2 mm, outer diameter 7.9 mm, length 18 cm, for use with HOPKINS® Telescope 25° 28163 BFA, color code: red

28163 FSW  Operating Sheath, graduated, distal oblique, with clamp mechanism for fixation, integrated irrigation connector, inner diameter 7.2 mm, outer diameter 7.9 mm, length 18 cm, for use with HOPKINS® Telescope 25° 28163 BFA, color code: red

28163 PSG  Operating Sheath, graduated, distal straight, integrated irrigation connector, inner diameter 6.2 mm, outer diameter 6.9 mm, length 17 cm, for use with HOPKINS® Telescope 15° 28163 FFA, color code: green

28163 PSN  Operating Sheath, graduated, distal beak, integrated irrigation connector, inner diameter 6.2 mm, outer diameter 6.9 mm, length 17 cm, for use with HOPKINS® Telescope 15° 28163 FFA, color code: green

28163 PSW  Operating Sheath, graduated, distal oblique, integrated irrigation connector, inner diameter 6.2 mm, outer diameter 6.9 mm, length 17 cm, for use with HOPKINS® Telescope 15° 28163 FFA, color code: green
Instruments

A range of instruments available for the SpineTIP system is presented on the following pages. The specially developed instruments are based on the principle: Access-optimized - reusable - color-coded.

Angled Bipolar Electrode

The distally angled, reusable bipolar electrode with spring handle is used for point coagulation under endoscopic control.

*28163 FBC*  
**Bipolar Electrode**, angled, diameter 2.5 mm, working length 36 cm  
including:  
**Bipolar Electrode Insert**  
**Electrode Sheath**  
**Bipolar Spring Handle**  
color code: blue, red, green

Angled Palpation Hooks

The available palpation hooks with 90° angulation allow palpation and mobilization of the intervertebral disc material and thus enable targeted decompression.

*28163 FBH*  
**CLICKLINE Palpation Hook**, rotating, dismantling, not insulated, with LUER-Lock irrigation connector for cleaning, with distal ball, bendable to 90°, size 3.5 mm, length 36 cm  
including:  
**Metal Handle**, without ratchet, with plastic rings with larger contact area  
**Outer Sheath**, with working insert  
color code: blue, red

*Bipolar Electrode Insert 28163 FBE is available by separate order. The corresponding bipolar cable is available for order, depending on the HF surgical unit used.*
Grasping Forceps

The grasping forceps listed here are specially designed for the SpineTIP system and allow the targeted removal of tissue fragments. Furthermore, the unique raven’s beak forceps is a special instrument that can be used to open the ligamentum flavum for the interlaminar approach.

28163 FBG  CLICKLINE Palpation Hook, rotating, dismantling, not insulated, with Luer-Lock irrigation connector for cleaning, with distal ball, bendable to 90°, diameter 2.7 mm, length 36 cm
including:
Metal Handle, without ratchet
with plastic rings with larger contact area
Outer Sheath with Palpation Hook Working Insert
color code: blue, red, green

28163 FSI  CLICKLINE BLAKESLEY Grasping Forceps, rotating, dismantling, insulated, with Luer-Lock irrigation connector for cleaning, single action jaws, fenestrated, size 3 mm, length 36 cm
including:
Plastic Handle, without ratchet
Outer Sheath, with forceps insert
color code: blue, red

28163 FZI  CLICKLINE Raven’s Beak Forceps, rotating, dismantling, insulated, with Luer-Lock irrigation connector for cleaning, single action jaws, diameter 3.5 mm, length 36 cm
including:
Plastic Handle, without ratchet
Forceps Insert, with raven’s beak
color code: blue, red
28163 FZ  **Grasping Forceps**, single action jaws, with 90° angle of view, diameter 3.5 mm, working length 36 cm
color code: blue, red

28163 FBM  **Grasping Forceps**, double action jaws, diameter 2.7 mm, working length 36 cm
color code: blue, red, green

28163 SE  **TAKE-APART® BLAKESLEY Grasping Forceps**,
diameter 2.3 mm, length 30 cm
including:
Handle
Working Attachment
color code: red, green

28163 SG  **TAKE-APART® Spoon Forceps**, oval,
diameter 2.3 mm, length 30 cm
including:
Handle
Working Attachment
color code: red, green

28163 SL  **TAKE-APART® Grasping Forceps**, serrated,
diameter 2.3 mm, length 30 cm
including:
Handle
Working Attachment
color code: red, green
Lateral Punches
The following dismantling punches can be used for opening and removing firmer structures.

28163 FPG  **SPINOFIT Punch**, dismantling, 90° downbiting, not through-cutting, working length 30 cm including:
- Punch Insert
- Outer Sheath
- Handle
  color code: red

28163 FPW  **SPINOFIT Punch**, dismantling, 45° downbiting, not through-cutting, working length 30 cm including:
- Punch Insert
- Outer Sheath
- Handle
  color code: red

Dissectors and Palpation Hooks
In addition to the mobilization and identification of tissue differentiation, dissectors and palpation hooks are important instruments for application of the so-called foraminal retreat.

28163 FDW  **Dissector**, distally curved 45°, diameter 2.6 mm, working length 36 cm
  color code: blue, red, green

28163 FDG  **Dissector**, distally curved 90°, diameter 2.6 mm, working length 36 cm
  color code: blue, red, green

28163 UH  **Palpation Hook**, distally angled 90°, with ball, diameter 2 mm, working length 25 cm
  color code: blue, red, green
Basic Set
Transforaminal Approach
1. 28163 PL **Puncture Needle**, including stylet, diameter 1.8 mm, working length 18 cm, with 1.3 mm opening for guide wire
2. 28163 GWL **Guide Wire**, blunt, diameter 1.1 mm, working length 45 cm
3. 28163 FHT **Dilation Sleeve**, outer diameter 6.5 mm, inner diameter 1.4 mm, length 31 cm, with two ports, for the transforaminal approach, color code: blue
4. 28163 CM **COTTLE Metal Mallet**, with plastic replacement head, length 22.5 cm
5. 28163 FEH **Punch Sleeve**, for use with operating sheaths
6. 28163 FKD **Fixation Handle**, for adjustment of dilation sleeves with outer diameter 2.5-6.5 mm
7. 28163 TSG **Operating Sheath**, graduated, distal straight, integrated irrigation connector, inner diameter 6.8 mm, outer diameter 7.8 mm, length 25 cm, for use with HOPKINS® Telescope 25° 28163 BTA, color code: blue
8. 28163 TSN **Operating Sheath**, graduated, with distal beak, integrated irrigation connector, inner diameter 6.8 mm, outer diameter 7.8 mm, length 25 cm, for use with HOPKINS® Telescope 25° 28163 BTA, color code: blue
9. 28163 TSW **Operating Sheath**, graduated, distal oblique, integrated irrigation connector, inner diameter 6.8 mm, outer diameter 7.8 mm, length 25 cm, for use with HOPKINS® Telescope 25° 28163 BTA, color code: blue
10. 28163 BTA **HOPKINS® Wide Angle Telescope 25°**, angled eyepiece, outer diameter 6.6 mm, working channel 3.6 mm, length 25.7 cm, autoclavable, fiber optic light transmission incorporated, color code: blue
11. 495 NA **Fiber Optic Light Cable**, with straight connector, diameter 3.5 mm, length 230 cm (not illustrated)
12. 28163 FBC **Bipolar Electrode**, angled, diameter 2.5 mm, working length 36 cm
13. 28163 UH **Palpation Hook**, distally angled 45°, diameter 2 mm, working length 34 cm
14. 28163 FDW **Dissector**, distally curved 45°, diameter 2.6 mm, working length 36 cm
15. 28163 FDG **Dissector**, distally curved 90°, diameter 2.6 mm, working length 36 cm
16. 28163 FBH **CLICKLINE Palpation Hook**, with distal ball, bendable to 90°, size 3.5 mm, length 36 cm
17. 28163 FZ **Grasping Forceps**, single action jaws, with 90° angle of view, diameter 3.5 mm, working length 36 cm
18. 28163 FBM **Grasping Forceps**, double action jaws, diameter 2.7 mm, working length 36 cm
19. 28163 FZI **CLICKLINE Raven’s Beak Forceps**, rotating, single action jaws, diameter 3.5 mm, length 36 cm
20. 28163 FSI **CLICKLINE BLAKESLEY Grasping Forceps**, rotating, single action jaws, fenestrated, size 3 mm, length 36 cm
21. 28163 FM **Knife**, retractable, diameter 3.5 mm, working length 36 cm

**Recommended Containers for Sterilization:**

Telescopes: 39314 G
Instruments: 39360 BK
Basic Set
Interlaminar Approach
1. 28163 PL  **Puncture Needle**, including stylet, diameter 1.8 mm, working length 18 cm, with 1.3 mm opening for guide wire
2. 28163 GW  **Guide Wire**, blunt, diameter 1.1 mm, working length 31 cm
3. 28163 FHI  **Dilation Sleeve**, with two ports, outer diameter 6.5 mm, inner diameter 1.4 mm, length 22 cm, color code: red
4. 28163 CM  **COTTLE Metal Mallet**, with plastic replacement head, length 22.5 cm
5. 28163 FEH  **Punch Sleeve**, for use with operating sheaths
6. 28163 FKD  **Fixation Handle**, for adjustment of dilation sleeves with outer diameter 2.5-6.5 mm
7. 28163 FSG  **Operating Sheath**, graduated, distal straight, with clamp mechanism for fixation, integrated irrigation connector, inner diameter 7.2 mm, outer diameter 7.9 mm, length 7 cm, for use with HOPKINS® Telescope 25° 28163 BFA, color code: red
8. 28163 FSN  **Operating Sheath**, graduated, with distal beak, with clamp mechanism for fixation, integrated irrigation connector, inner diameter 7.2 mm, outer diameter 7.9 mm, length 8 cm, for use with HOPKINS® Telescope 25° 28163 BFA, color code: red
9. 28163 FSW  **Operating Sheath**, graduated, distal oblique, with clamp mechanism for fixation, integrated irrigation connector, inner diameter 7.2 mm, outer diameter 7.9 mm, length 17 cm, for use with HOPKINS® Telescope 25° 28163 BFA, color code: red
10. 28163 BFA  **HOPKINS® Wide Angle 25°**, angled eyepiece, outer diameter 6.6 mm, working channel diameter 3.6 mm, length 18 cm, **autoclavable**, fiber optic light transmission incorporated, color code: red
11. 495 NA  **Fiber Optic Light Cable**, with straight connector, diameter 3.5 mm, length 230 cm (not illustrated)
12. 28163 FBC  **Bipolar Electrode**, angled, diameter 2.5 mm, working length 36 cm
13. 28163 FM  **Knife**, retractable, diameter 3.5 mm, working length 36 cm
14. 28163 FBH  **CLICKLINE Palpation Hook**, with distal ball, bendable to 90°, size 3.5 mm, length 36 cm
15. 28163 UH  **Palpation Hook**, distally angled 45°, diameter 2 mm, working length 34 cm
16. 28163 FDW  **Dissector**, distally curved 45°, diameter 2.6 mm, working length 36 cm
17. 28163 FDG  **Dissector**, distally curved 90°, diameter 2.6 mm, working length 36 cm
18. 28163 FBM  **Grasping Forceps**, double action jaws, diameter 2.7 mm, working length 36 cm
19. 28163 FZ  **Grasping Forceps**, single action jaws, with 90° angle of view, diameter 3.5 mm, working length 36 cm
20. 28163 FZI  **CLICKLINE Raven's Beak Forceps**, rotating, single action jaws, diameter 3.5 mm, length 36 cm
21. 28163 FSI  **CLICKLINE BLAKESLEY Grasping Forceps**, rotating, single action jaws, fenestrated, size 3 mm, length 36 cm
22. 28163 FPW  **SPINOFIT Punch**, dismantling, 45° downbiting, not through-cutting, working length 30 cm
23. 28163 FPG  **SPINOFIT Punch**, dismantling, 90° downbiting, not through-cutting, working length 30 cm
24. 28163 FTK  **Trephine**, with round handle, inner diameter 3.2 mm, outer diameter 4.2 mm, working length 22 cm
25. 28163 FTG  **Trephine**, with round handle, inner diameter 7 mm, outer diameter 8 mm, working length 17.5 cm
26. 28163 FTM  **Trephine**, with pyramidal handle, inner diameter 1.6 mm, outer diameter 2.7 mm, working length 30 cm

**Recommended Containers for Sterilization:**
- **Telescopes:** 39314 G
- **Instruments:** 39360 BK
Basic Set
Posterolateral Approach
<table>
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<tr>
<th>Item Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>28163 PL</td>
<td><strong>Puncture Needle</strong>, including stylet, diameter 1.8 mm, working length 18 cm, with 1.3 mm opening for guide wire</td>
</tr>
<tr>
<td>28163 GWT</td>
<td><strong>Guide Wire</strong>, blunt on both sides, diameter 0.7 mm, working length 41 cm, package of 5</td>
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<tr>
<td>28163 FHP</td>
<td><strong>Dilation Sleeve</strong>, outer diameter 6 mm, inner diameter 1 mm, length 22 cm, with two ports, for the posterolateral approach, color code: green</td>
</tr>
<tr>
<td>28163 CM</td>
<td><strong>COTTLE Metal Mallet</strong>, with plastic replacement head, length 22.5 cm</td>
</tr>
<tr>
<td>28163 FEH</td>
<td><strong>Punch Sleeve</strong>, for use with operating sheaths</td>
</tr>
<tr>
<td>28163 FKD</td>
<td><strong>Fixation Handle</strong>, for adjustment of dilation sleeves with outer diameter 2.5-6.5 mm</td>
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<tr>
<td>28163 PSG</td>
<td><strong>Operating Sheath</strong>, graduated, distal straight, integrated irrigation connector, inner diameter 6.2 mm, outer diameter 6.9 mm, length 17 cm, for use with HOPKINS® Telescope 15° 28163 FFA, color code: green</td>
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<td>28163 PSN</td>
<td><strong>Operating Sheath</strong>, graduated, with distal beak, integrated irrigation connector, inner diameter 6.2 mm, outer diameter 6.9 mm, length 17 cm, for use with HOPKINS® Telescope 15° 28163 FFA, color code: green</td>
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<tr>
<td>28163 FFA</td>
<td><strong>HOPKINS® Wide Angle Telescope 15°</strong>, angled eyepiece, outer diameter 6.1 mm, working channel diameter 2.9 mm, length 18 cm, <strong>autoclavable</strong>, fiber optic light transmission incorporated, color code: green</td>
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<tr>
<td>495 NA</td>
<td><strong>Fiber Optic Light Cable</strong>, with straight connector, diameter 3.5 mm, length 230 cm (not illustrated)</td>
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<tr>
<td>28163 FBC</td>
<td><strong>Bipolar Electrode</strong>, angled, diameter 2.5 mm, working length 36 cm</td>
</tr>
<tr>
<td>28163 UH</td>
<td><strong>Palpation Hook</strong>, distally angled 45°, diameter 2 mm, working length 34 cm</td>
</tr>
<tr>
<td>28163 FDW</td>
<td><strong>Dissector</strong>, distally curved 45°, diameter 2.6 mm, working length 36 cm</td>
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<tr>
<td>28163 FDG</td>
<td><strong>Dissector</strong>, distally curved 90°, diameter 2.6 mm, working length 36 cm</td>
</tr>
<tr>
<td>28163 SE</td>
<td><strong>TAKE-APART® BLAKESLEY Forceps</strong>, diameter 2.3 mm, working length 30 cm</td>
</tr>
<tr>
<td>28163 SL</td>
<td><strong>TAKE-APART® Grasping Forceps</strong>, serrated, diameter 2.3 mm, working length 30 cm</td>
</tr>
<tr>
<td>28163 FBM</td>
<td><strong>Grasping Forceps</strong>, double action jaws, diameter 2.7 mm, working length 36 cm</td>
</tr>
<tr>
<td>28163 FBD</td>
<td><strong>CLICKLINE Palpation Hook</strong>, rotating, with distal ball, bendable to 90°, diameter 2.7 mm, length 36 cm (not illustrated)</td>
</tr>
<tr>
<td>28163 FTK</td>
<td><strong>Trephine</strong>, with round handle, inner diameter 3.2 mm, outer diameter 4.2 mm, working length 22 cm</td>
</tr>
<tr>
<td>28163 FTG</td>
<td><strong>Trephine</strong>, with round handle, inner diameter 7 mm, outer diameter 8 mm, working length 17.5 cm</td>
</tr>
<tr>
<td>28163 FTM</td>
<td><strong>Trephine</strong>, with pyramidal handle, inner diameter 1.6 mm, outer diameter 2.7 mm, working length 30 cm</td>
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**Recommended Containers for Sterilization:**
Telescopes: 39314 G
Instruments: 39360 BK

Bipolar electrode insert is available separately under order no. 28163 FBE.
**ARTHROPUMP® Power**

The perfect synergy between the ARTHROPUMP® Power and the SpineTIP system provides the continuous flow required to perform successful surgery.

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**283407 02-1** ARTHROPUMP® Power, Set, Spine,

power supply 100-240 VAC, 50/60 Hz,

including:

- Mains Cord, length 300 cm
- Tubing Set Irrigation, for ARTHROPUMP® Power
- Tubing Set Suction, for ARTHROPUMP® Power
- SCB Connecting Cable, length 100 cm

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**Specifications**

(application for the spine):

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<th>Specification</th>
<th>Details</th>
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<tr>
<td>Pressure, regulated</td>
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<tr>
<td>Continuous Flow</td>
<td>10-200 ml/min</td>
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<tr>
<td>Power supply</td>
<td>100-240 VAC, 50/60 Hz</td>
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<td>Dimensions w x h x d</td>
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<tr>
<td>Weight</td>
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<tr>
<td>Certified to</td>
<td>IEC 601-1, CE acc. to MDD</td>
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