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

Thomas Lübbers, M.D.
Department of Neurosurgery, Spine Center, Maria-Hilf Hospital, Stadtlohn, Germany
**Introduction**

The **SpineTIP** system offers various possibilities for treating herniated discs as well as other spinal pathologies in the lumbar and thoracic regions, i.e. spondylodiscitis or spinal tumors. Endoscopic systems that combine a high-resolution telescope, a light source as well as working and irrigation channels in one unit make it possible to perform minimally invasive interventions via a single port under excellent visual control. The term ‘percutaneous endoscopic lumbar discectomy’ (PELD) is used to describe the use of these systems and techniques in lumbar spinal surgery.

**SpineTIP** stands for 3 fundamental percutaneous endoscopic approaches:
- **Transforaminal**
- **Interlaminar**
- **Posterolateral**

The **SpineTIP** system provides an endoscope and instruments that are optimized for 3 standard approaches: **transforaminal**, **interlaminar** and **posterolateral**.
The SpineTIP system, therefore, represents a concept that is optimized for specific surgical approaches, making endoscopic spinal surgery easier for the user. Consequently, the design and the dimensions of the telescope as well as the choice of instruments have been adapted to the pathology to be treated.

The posterolateral system is particularly suitable for treating intra- and extraforaminal herniated discs in the lumbar and thoracic regions but, if required, can be utilized for intradiscal procedures as well.

The new, longer transforaminal endoscope also enables the successful operation on obese patients with mediolateral herniated discs without experiencing the typical problems associated with adiposity. In contrast, the shorter system with a similar design is used for the interlaminar approach using special supplementary instruments, i.e. side cutting punches, particularly in the L5/S1 region.

**Benefits of SpineTIP**

The advantages over open procedures are clear:

- Minimal access trauma
- Reduced formation of intraspinal scar tissue
- No resection of bony structures necessary
- No destabilization of the mobile segment
- No epidural scar formation
- Good cosmetic results
- Pathology-focused surgery
- Selective removal of the hernia
- Protection of the spinal canal
- Less blood loss
- Lower risk of infection due to continuous irrigation
- Shorter operating time
- Excellent visualization
- Unlimited revision options
- Can be used regardless of patient’s body size or weight
- Minimal operative risk

Nevertheless, this system has a flat learning curve and contains the risk of access site injury to the exiting nerve root. To minimize this risk, intraoperative nerve monitoring techniques are available nowadays which can accurately predict the proximity to a nerve root in anesthetized patients.

Thomas Lübbers, M.D.
Department of Neurosurgery, Spine Center,
Maria-Hilf Hospital, Stadtlohn, Germany

For more information, please scan the code.
SpineTIP – Percutaneous Endoscopic Lumbar Approaches

**Transforaminal Approach**

![Image of Transforaminal Approach]

- **Irrigation/suction channels**
- **Optical lens**
- **Light cable-connector**

**Interlaminar Approach**

![Image of Interlaminar Approach]

- **Irrigation/suction channels**
- **Optical lens**
- **Light cable-connector**

**Posterolateral Approach**

![Image of Posterolateral Approach]

- **Irrigation/suction channels**
- **Optical lens**
- **Light cable-connector**
• 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 hernation
• 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 distal tip of the sheath enables atraumatic tissue retraction, if required, without causing injury. Due to the accurate positioning of the dilation sleeve, the operating sheath serves as an optimal access so that the telescope can be removed and re-introduced at any time. The color coding makes the access instruments easy to use and saves time.

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
Angled Bipolar Electrode

The distally angled, reusable bipolar electrode with spring handle is inserted in the working channel. The bipolar electrode allows point coagulation under endoscopic control. Furthermore, the distal angulation enables palpation and mobilization of the tissue.

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 Hook

28163 FBH  **CLICKLINE Palpation Hook, rotating, dismantling, not insulated, without connector pin for unipolar coagulation, 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.
Grasping Forceps

The raven’s beak forceps can be used to open the ligamentum flavum via the interlaminar window.

28163 FZI  **CLICKLINE Raven's Beak Forceps**, rotating, dismantling, insulated, with connector pin for unipolar coagulation, 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 FSI  **CLICKLINE BLAKESLEY Grasping Forceps**, rotating, dismantling, insulated, with connector pin for unipolar coagulation, 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 FBG  **CLICKLINE Palpation Hook**, rotating, dismantling, not insulated, without connector pin for unipolar coagulation, 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
**Outer Sheath with Palpation Hook Working Insert**
color code: blue, red
The following grasping forceps allow the grasping of tissue fragments. The instruments feature a Luer-connector for enhanced cleaning and a suction function for better grasping of loose tissue fragments.

- **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
Lateral Punches

We offer the following dismantling, lateral punches for opening the ligamentum flavum.

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

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

Dissector and Palpation Hook

28163 FDW  **Dissector**, distally curved 45°, 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
   28163 FKD  **Fixation Handle**, for adjustment of dilation sleeves with outer diameter 2.5-6.5 mm
6. 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
7. 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
8. 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
9. 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
495 NA  **Fiber Optic Light Cable**, with straight connector, diameter 3.5 mm, length 230 cm (not illustrated)
10. 28163 FBC  **Bipolar Electrode**, angled, diameter 2.5 mm, working length 36 cm
11. 28163 UH  **Palpation Hook**, distally angled 45°, diameter 2 mm, working length 34 cm
12. 28163 FDW  **Dissector**, distally curved 45°, diameter 2.6 mm, working length 36 cm
13. 28163 FDG  **Dissector**, distally curved 90°, diameter 2.6 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 FZ  **Grasping Forceps**, single action jaws, with 90° angle of view, diameter 3.5 mm, working length 36 cm
19. 28163 FBM  **Grasping Forceps**, double action jaws, diameter 2.7 mm, working length 36 cm
17. 28163 FZI  **CLICKLINE Raven’s Beak Forceps**, rotating, single action jaws, diameter 3.5 mm, length 36 cm
18. 28163 FSI  **CLICKLINE BLAKESLEY Grasping Forceps**, rotating, single action jaws, fenestrated, size 3 mm, length 36 cm
19. 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
<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>28163 PL</td>
<td>Puncture Needle, including stylet, diameter 1.8 mm, working length 18 cm, with 1.3 mm opening for guide wire</td>
<td></td>
</tr>
<tr>
<td>28163 GW</td>
<td>Guide Wire, blunt, diameter 1.1 mm, working length 31 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FHI</td>
<td>Dilation Sleeve, with two ports, outer diameter 6.5 mm, inner diameter 1.4 mm, length 22 cm, color code: red</td>
<td></td>
</tr>
<tr>
<td>28163 CM</td>
<td>COTTLE Metal Mallet, with plastic replacement head, length 22.5 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FEH</td>
<td>Punch Sleeve, for use with operating sheaths</td>
<td></td>
</tr>
<tr>
<td>28163 FKH</td>
<td>Operating Handle, for adjustment of dilation sleeves with outer diameter 2.5-6.5 mm</td>
<td></td>
</tr>
<tr>
<td>28163 FSG</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>28163 FSN</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>28163 FSW</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>28163 BFA</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>495 NA</td>
<td>Fiber Optic Light Cable, with straight connector, diameter 3.5 mm, length 230 cm (not illustrated)</td>
<td></td>
</tr>
<tr>
<td>28163 FBC</td>
<td>Bipolar Electrode, angled, diameter 2.5 mm, working length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FM</td>
<td>Knife, retractable, diameter 3.5 mm, working length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FBH</td>
<td>CLICKLINE Palpation Hook, with distal ball, bendable to 90°, size 3.5 mm, length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 UH</td>
<td>Palpation Hook, distally angled 45°, diameter 2 mm, working length 34 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FDW</td>
<td>Dissector, distally curved 45°, diameter 2.6 mm, working length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FDG</td>
<td>Dissector, distally curved 90°, diameter 2.6 mm, working length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FBM</td>
<td>Grasping Forceps, double action jaws, diameter 2.7 mm, working length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FZ</td>
<td>Grasping Forceps, single action jaws, with 90° angle of view, diameter 3.5 mm, working length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FZI</td>
<td>CLICKLINE Raven's Beak Forceps, rotating, single action jaws, diameter 3.5 mm, length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FSI</td>
<td>CLICKLINE BLAKESLEY Grasping Forceps, rotating, single action jaws, fenestrated, size 3 mm, length 36 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FPW</td>
<td>SPINOFIT Punch, dismantling, 45° downbiting, not through-cutting, working length 30 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FPG</td>
<td>SPINOFIT Punch, dismantling, 90° downbiting, not through-cutting, working length 30 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FTK</td>
<td>Trephine, with round handle, inner diameter 3.2 mm, outer diameter 4.2 mm, working length 22 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FTG</td>
<td>Trephine, with round handle, inner diameter 7 mm, outer diameter 8 mm, working length 17.5 cm</td>
<td></td>
</tr>
<tr>
<td>28163 FTM</td>
<td>Trephine, with pyramidal handle, inner diameter 1.6 mm, outer diameter 2.7 mm, working length 30 cm</td>
<td></td>
</tr>
</tbody>
</table>

**Recommended Containers for Sterilization:**

Telescopes: 39314 G
Instruments: 39360 BK
Basic Set
Posterolateral 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 GWT** Guide Wire, blunt on both sides, diameter 0.7 mm, working length 41 cm, package of 5
3. **28163 FHP** Dilation Sleeve, outer diameter 6 mm, inner diameter 1 mm, length 22 cm, with two ports, for the posterolateral approach, color code: green
4. **28163 CM** COTITTLE 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 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
8. **28163 PSN** Operating Sheath, 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
9. **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
10. **28163 FFA** HOPKINS® Wide Angle Telescope 15°, angled eyepiece, outer diameter 6.1 mm, working channel diameter 2.9 mm, length 18 cm, autoclavable, fiber optic light transmission incorporated, color code: green
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 SE** TAKE-APART® BLAKESLEY Forceps, diameter 2.3 mm, working length 30 cm
17. **28163 SL** TAKE-APART® Grasping Forceps, serrated, diameter 2.3 mm, working length 30 cm
18. **28163 FBM** Grasping Forceps, double action jaws, diameter 2.7 mm, working length 36 cm
19. **28163 FBG** CLICKLINE Palpation Hook, rotating, with distal ball, bendable to 90°, diameter 2.7 mm, length 36 cm (not illustrated)
20. **28163 FTK** Trephine, with round handle, inner diameter 3.2 mm, outer diameter 4.2 mm, working length 22 cm
21. **28163 FTG** Trephine, with round handle, inner diameter 7 mm, outer diameter 8 mm, working length 17.5 cm
22. **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

Bipolar electrode insert is available separately under order no. 28163 FBE.
UNIDRIVE® S III NEURO SCB

40701701-1 UNIDRIVE® S III NEURO SCB, motor control unit with color display, touch screen, two motor outputs, integrated irrigation pump and integrated SCB module, power supply 100-240 VAC, 50/60 Hz including:
- Mains Cord
- Irrigator Rod
- Two-Pedal Footswitch, two-stage, with proportional function
- Silicone Tubing Set, for irrigation, sterilizable
- Clip Set, for use with tubing set
- SCB Connecting Cable, length 100 cm
- Single Use Tubing Set, sterile, package of 3

Specifications:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch Screen</td>
<td>6.4&quot;/300 cd/m²</td>
</tr>
<tr>
<td>Available languages</td>
<td>English, French, German, Spanish, Italian, Portuguese, Greek, Turkish, Polish, Russian</td>
</tr>
<tr>
<td>Dimensions w x h x d</td>
<td>300 x 165 x 265 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>5.2 kg</td>
</tr>
<tr>
<td>Power supply</td>
<td>100-240 VAC, 50/60 Hz</td>
</tr>
<tr>
<td>Certified to</td>
<td>IEC 601-1, CE acc. to MDD</td>
</tr>
</tbody>
</table>
Suction Burrs

The following suction burrs are provided for use with HOPKINS® telescope 25° for the interlaminar approach:

41201 FD  **Suction Burr**, with integrated irrigation, straight, sterilizable, cylindrical cutter head with lateral and distal protection, shaft diameter 3.5 mm, length 30 cm, for use with DRILLCUT-X® II Spine Handpiece 28712050
color code: **red**

41301 FD  **Suction Burr**, with integrated irrigation, straight, for single use, sterile, package of 5, cylindrical cutter head with lateral and distal protection, shaft diameter 3.5 mm, length 30 cm, for use with DRILLCUT-X® II Spine Handpiece 28712050
color code: **red**

**DRILLCUT-X® II Spine Handpiece**

28712050  **DRILLCUT-X® II Spine Handpiece**, for use with UNIDRIVE® S III NEURO
ARTHROPUMP® Power

The synergy between ARTHROPUMP® Power and the SPINETIP components provides the continuous flow required to perform successful surgeries with an effective technique.

Specifications
(application for the spine):

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure, regulated</td>
<td>20-150 mmHg</td>
</tr>
<tr>
<td>Continuous Flow</td>
<td>10-200 ml/min</td>
</tr>
<tr>
<td>Power supply</td>
<td>100-240 VAC, 50/60 Hz</td>
</tr>
<tr>
<td>Dimensions</td>
<td>447 x 155 x 313 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>8.8 kg</td>
</tr>
<tr>
<td>Certified to</td>
<td>IEC 601-1, CE acc. to MDD</td>
</tr>
</tbody>
</table>
It is recommended to check the suitability of the product for the intended procedure prior to use.