CarboClear® Pedicle Screw System

Carbon Fiber Implants - Essential in Oncology Spine Surgery

- **CT/MRI artifacts free**
  - Enhanced follow-up capabilities
  - Improved radiation planning precision
  - Reduced radiation planning time

- **Unparalleled fatigue resistance**

- **Enhanced radiation therapy administration**
  - Negligible backscattering and attenuation for increased dosage accuracy
  - Advantageous in proton therapy and stereotactic radiosurgery

Ultrathin Titanium Shell to allow:
- X-Ray visualization
- Bone integration

Screw Cross Section

Polyaxial
• Allows precise follow-up and identification of local recurrence
  
• Improved radiation planning accuracy
  
• Reduced radiation planning work time

CT/MRI Artifacts Free

Titanium Screws
CarboClear® Screws

CT
MRI

Enhanced Radiation Planning Accuracy

Stainless Steel
Titanium
Carbon Fiber

Implant & Artifacts
Implant & Artifacts
Implant & No Artifacts

Actual Area
Desired Area


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Enhanced Radiation Therapy Administration

Radiation Therapy (Photons)

Negligible Effect on Radiotherapy Dose Distribution\(^5\)

- **Radiation backscattering**: up to 22% in metal vs. 1% in carbon fiber
- **Radiation attenuation**: up to 17% in metal vs. 2% in carbon fiber

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Proton Therapy

**Attenuation of Carbon Fiber Vs. Titanium Implants\(^2\)**

- Attenuation of titanium in radiosurgery is up to 78% vs. negligible attenuation with carbon fiber

**Local Control Significantly Better Without Metal Construct\(^6\)**

5 years Local Control: 100%

5 years Local Control: 30%

Follow-up period (month)
The CarboClear® CFR-PEEK implants have unparalleled fatigue resistance.

T9 Myeloma Metastasis

3 Months Post-OP MRI 3 Months Post-OP CT

Pedicle Screws

<table>
<thead>
<tr>
<th>Cat. Number</th>
<th>Diameter (mm)</th>
<th>Length (mm) (increments)</th>
<th>Cannulated</th>
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<td>PNNSS5XX</td>
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<td>30-45 (5)</td>
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<td>PNNS65XX</td>
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<td>35-55 (5)</td>
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<td>PNNSC65XX</td>
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Shaped Rods

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<td>PPLCR6190S</td>
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<td>PLMCR6200</td>
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<td>PNNSR4270</td>
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Trans-Connectors

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<td>PPTCR60XX</td>
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<td>PPLR6100</td>
<td>Iliac Crest Rod</td>
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<td>PPSTCC4000</td>
<td>Trans-Connector Locking Element + Ring</td>
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Rods

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<th>Cat. Number</th>
<th>Type</th>
<th>Diameter (mm)</th>
<th>Length (mm) (increments)</th>
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<tbody>
<tr>
<td>PPLOSR60XX</td>
<td>Straight</td>
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<tr>
<td>PPLOCR60XX</td>
<td>Curved</td>
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All items supplied sterile packed.