INTRAMEDULLARY NAILS
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<td>Tibia Nail-EX</td>
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## Intramedullary Nails Technical Specifications

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<thead>
<tr>
<th>MultiLoc Humeral Nail</th>
<th>Humeral Nail-EX</th>
<th>TFN</th>
<th>ALFN-EX</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opening Drill Bit</strong></td>
<td>10.0 mm, 11.5 mm</td>
<td>10.0 mm</td>
<td>17.0 mm</td>
</tr>
<tr>
<td><strong>Instrumented End Diameter</strong></td>
<td>9.5 mm, 11.0 mm (short nail) 9.5 mm (long nail)</td>
<td>9.0 mm and 11.0 mm</td>
<td>17.0 mm</td>
</tr>
<tr>
<td><strong>Shaft Diameters</strong></td>
<td>8.0 mm, 9.5 mm (short nail) 7.0 mm, 8.5 mm (long nails)</td>
<td>7.0 mm, 9.0 mm, 11.0 mm</td>
<td>10.0 mm, 11.0 mm, 12.0 mm, 14.0 mm</td>
</tr>
<tr>
<td><strong>Lengths</strong></td>
<td>160 mm (short nail) 180 mm – 315 mm (long nails)</td>
<td>150 mm (short nail) 190 mm–320 mm (long nails)</td>
<td>170 mm and 235 mm 300 mm – 460 mm</td>
</tr>
<tr>
<td><strong>Cannulated</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>CCD Angle</strong></td>
<td>NA</td>
<td>NA</td>
<td>125˚, 130˚, 135˚</td>
</tr>
<tr>
<td><strong>Compression</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Bend</strong></td>
<td>No</td>
<td>5˚</td>
<td>6˚</td>
</tr>
<tr>
<td><strong>Radius of Curvature</strong></td>
<td>Straight</td>
<td>None</td>
<td>Short Nail — straight  Long Nails — 1.5 m</td>
</tr>
<tr>
<td><strong>Locking Screws</strong></td>
<td>4.5 mm MultiLoc screws (gold) 3.5 mm Screw in screw (green) 4.0 mm Locking Screws (Distal) (blue)</td>
<td>4.0 mm Locking Screws (blue)</td>
<td>5.0 mm (green)</td>
</tr>
<tr>
<td><strong>Proximal Locking Options</strong></td>
<td>4 proximal MultiLoc screws in multiplanar configuration 1 Spiral Blade or Screw 1 L-M screw</td>
<td>1-Blade or Screw Short nails have additional targeted proximal hole for 5.0 mm screw</td>
<td>2 Recon, 1 Transverse, 1 Antegrade</td>
</tr>
<tr>
<td><strong>Distal Locking Options</strong></td>
<td>2 L-M multiplanar screws (short nail) 2 A-P, 1 L-M (long nails)</td>
<td>2 L-M screws (short nail) 1 A-P, 1 L-M, 1 M-L (long nails)</td>
<td>Short nail — 1 Dynamic Long nail — 2, 1 static and 1 Dynamic</td>
</tr>
<tr>
<td><strong>End Caps</strong></td>
<td>0 mm, 2 mm, 5 mm, 10 mm, 15 mm</td>
<td>0 mm, 5 mm, 10 mm, 15 mm</td>
<td>0 mm, 5 mm, 10 mm, 15 mm</td>
</tr>
<tr>
<td><strong>Blade</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>ASLS Screw</strong></td>
<td>Brown</td>
<td>Brown</td>
<td>Light Blue</td>
</tr>
<tr>
<td><strong>Reaming Rod</strong></td>
<td>Up to 2.5 mm</td>
<td>Up to 2.5 mm</td>
<td>Up to 3.0 mm</td>
</tr>
<tr>
<td></td>
<td>LFN-EX</td>
<td>RAFN-EX</td>
<td>Tibia-EX</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Opening Drill Bit</strong></td>
<td>15.0 mm, 17.0 mm</td>
<td>13.0 mm</td>
<td>12.0 mm</td>
</tr>
<tr>
<td><strong>Instrumented End Diameter</strong></td>
<td>13.5 mm, 16.0 mm</td>
<td>12.0 mm (for 9.0 mm–12.0 mm nails)</td>
<td>11.0 mm (for 8.0 mm–11.0 mm nails)</td>
</tr>
<tr>
<td><strong>Shaft Diameters</strong></td>
<td>9.0 mm, 10.0 mm, 11.0 mm, 12.0 mm, 13.0 mm, 14.0 mm, 15.0 mm, 16.0 mm</td>
<td>9.0 mm, 10.0 mm, 11.0 mm, 12.0 mm, 13.0 mm, 14.0 mm, 15.0 mm</td>
<td>8.0 mm, 9.0 mm, 10.0 mm, 11.0 mm, 12.0 mm, 13.0 mm</td>
</tr>
<tr>
<td><strong>Lengths</strong></td>
<td>300 mm – 480 mm</td>
<td>160 mm – 480 mm</td>
<td>255 mm – 435 mm</td>
</tr>
<tr>
<td><strong>Cannulated</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>CCD Angle</strong></td>
<td>130°, 10° Anteversion</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Compression</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Bend</strong></td>
<td>Fully curved, 10° lateral start</td>
<td>NA</td>
<td>10.5°</td>
</tr>
<tr>
<td><strong>Radius of Curvature</strong></td>
<td>1.0 m</td>
<td>Short Nail – straight Long Nails – 1.5 m</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Locking Screws</strong></td>
<td>6.5 mm Recon (gold) 5.0 mm (green) 6.0 mm (aqua)</td>
<td>5.0 mm (green) 6.0 mm (aqua)</td>
<td>4.0 mm (blue) 5.0 mm (green) 5.0 mm Dual Core (gold)</td>
</tr>
<tr>
<td><strong>Proximal Locking Options</strong></td>
<td>2 Recon, 1 Transverse, 1 Antegrade</td>
<td>Short Nail Retrograde – 2 L-M Long Nails Retrograde – 2 A-P Antegrade – 2 L-M</td>
<td>2 Oblique, 1, A-P, 2 M-L</td>
</tr>
<tr>
<td><strong>Distal Locking Options</strong></td>
<td>2 L-M, 1 Oblique</td>
<td>Retrograde – 1 L-M and Spiral Blade, or 2 L-M Antegrade– 2 L-M</td>
<td>2 M-L, 1 Oblique, 1 A-P</td>
</tr>
<tr>
<td><strong>End Caps</strong></td>
<td>0 mm, 5 mm, 10 mm, 15 mm, 20 mm</td>
<td>0 mm, 5 mm, 10 mm, 15 mm, 20 mm, 0 mm for spiral blade</td>
<td>0 mm, 5 mm, 10 mm, 15 mm</td>
</tr>
<tr>
<td><strong>Blade</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>ASLS Screw</strong></td>
<td>Light Blue 9.0 mm–13.0 mm</td>
<td>Light Blue 9.0 mm–13.0 mm</td>
<td>Brown 8.0 mm, 9.0 mm</td>
</tr>
<tr>
<td></td>
<td>Dark Purple 14.0 mm–15.0 mm</td>
<td>Dark Purple 14.0 mm–15.0 mm</td>
<td>Light Blue 10.0 mm–15.0 mm</td>
</tr>
<tr>
<td><strong>Reaming Rod</strong></td>
<td>Up to 3.0 mm</td>
<td>Up to 3.0 mm</td>
<td>Up to 3.0 mm</td>
</tr>
</tbody>
</table>
MultiLoc Humeral Nails, sterile
• Straight, cannulated nails with right and left designs

Material
• Titanium-6% Aluminium-7% Niobium alloy

Diameters
MultiLoc Proximal Humeral Nail
• 8.0 mm (proximal diameter 9.5 mm)
• 9.5 mm (proximal diameter 11.0 mm)

MultiLoc Humeral Nail
• 7.0 mm (proximal diameter 9.5 mm)
• 8.5 mm (proximal diameter 9.5 mm)

Color
• Blue

Cross section
• Round
Humeral Nail–EX
• Universal design for the left or right humerus

Material
• Titanium-6% Aluminum-7% Niobium alloy

Diameters
• 7.0 mm, 9.0 mm (with a 9.0 mm proximal diameter)
• 11.0 mm (with an 11.0 mm proximal diameter)

Color
• Blue

Lengths
• 190 mm to 320 mm in 10 mm increments (Humeral Nail)
• 150 mm (Proximal Humeral Nail)

Cross Section
• Round
TROCHANTERIC FIXATION NAILS—SHORT

Trochanteric Fixation Nails—Short
10 mm–12 mm Nails
170 mm and 235 mm lengths

Material
• Titanium-6% Aluminum-7% Niobium alloy

Angles
• 125°
• 130°
• 135°

Features of the short (170 mm and 235 mm) nails
• Proximal diameter of 17 mm
• Anatomic 6° lateral angle
• Distal diameters of 10 mm, 11 mm, 12 mm
• Preassembled locking mechanism for controlling blade and screw rotation and amount of blade and screw travel
• Blade and screw static interlocking
• Universal design for left and right femurs

Distal locking slot accepts 4.9 mm locking bolts or 5.0 mm locking screws
Trochanteric Fixation Nails—Long
10 mm–14 mm Nails
300 mm–460 mm lengths
(20 mm increments)

Material
• Titanium-6% Aluminum-7% Niobium alloy

Angles
• 125°
• 130°*
• 135°

Features of the long
(300 mm–460 mm) nails
• Proximal diameter of 17 mm
• Anatomic 6° lateral angle
• Distal diameters of 10 mm, 11 mm, 12 mm and 14 mm
• Preassembled locking mechanism for controlling blade and screw rotation and amount of blade and screw travel
• Blade and screw static interlocking
• Anatomic 1.5 m radius of curvature
• Static or dynamic distal interlocking with controlled dynamization of 10 mm
• Anatomic 10° anteversion
• Nail designs for both left and right femurs

Distal locking holes accept
4.9 mm locking bolts or
5.0 mm locking screws

*14 mm diameter nails are available in 130° only
Adolescent Lateral Entry Femoral Nail–EX

- Available for left or right femur
- Anatomic nail design based on a femoral canal tracing study

**Material**
- Titanium-6% Aluminum-7% Niobium alloy

**Diameters**
- 8.2 mm, cannulated
- 9.0 mm, cannulated
- 10.0 mm, cannulated

**Lengths**
- 240 mm through 400 mm in 20 mm increments

**Cross Section**
- Helical fluted

**Proximal locking**
- Dynamization slot (LM)
- Static transverse locking hole (LM)
- 120° antegrade locking
- Two recon locking holes

**Distal locking**
- Two transverse locking holes (LM)

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1. L. Ehmke, et al.
**Lateral Entry Femoral Recon Nail–EX**

- Available for left or right femur
- Anatomic nail design based on a femoral canal tracing study

**Material**
- Titanium-6% Aluminum-7% Niobium alloy

**Diameters**
- 9.0 mm to 16.0 mm, cannulated
- 9.0 mm through 12.0 mm nails—13.5 mm proximal diameter
- 13.0 mm through 16.0 mm nails—16.0 mm proximal diameter

**Colors**
- 9.0 mm through 13.0 mm (light green)
- 14.0 mm through 16.0 mm (aqua)

**Lengths**
- 300 mm through 480 mm in 20 mm increments

**Cross Section**
- 9.0 mm through 16.0 mm diameter nails—helical fluted

**Proximal Locking**
- Two recon locking holes (130° neck/shaft angle)
- Dynamization slot (LM)
- Static transverse locking hole (LM)
- 120° antegrade locking hole

**Distal Locking**
- Two transverse locking holes (LM)
- One oblique locking hole (LM)

<table>
<thead>
<tr>
<th>Nail diameter</th>
<th>Locking screws</th>
<th>Protection sleeve</th>
<th>Drill sleeve</th>
<th>Trocar</th>
<th>Calibrated drill bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0 mm–13.0 mm (green)</td>
<td>5.0 mm</td>
<td>12.0 mm/8.0 mm (03.010.063)</td>
<td>8.0 mm/4.2 mm (03.010.065)</td>
<td>4.2 mm (03.010.070)</td>
<td>4.2 mm (03.010.061)</td>
</tr>
<tr>
<td>14.0 mm–16.0 mm (aqua)</td>
<td>6.0 mm</td>
<td>12.0 mm/8.0 mm (03.010.063)</td>
<td>8.0 mm/5.0 mm (03.010.066)</td>
<td>5.0 mm (03.010.071)</td>
<td>5.0 mm (03.010.062)</td>
</tr>
</tbody>
</table>

1. L.Ehmke, et al.
### Retrograde/Antegrade Femoral Nail—EX

#### Retrograde Nails

<table>
<thead>
<tr>
<th>Nail length</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>160 mm</td>
<td>18 mm</td>
<td>42 mm</td>
</tr>
<tr>
<td>180 mm</td>
<td>14 mm</td>
<td>38 mm</td>
</tr>
<tr>
<td>200 mm</td>
<td>10 mm</td>
<td>34 mm</td>
</tr>
</tbody>
</table>

#### Retrograde/Antegrade Nails

- 0 mm
- 29 mm
- 34 mm
- 58 mm
- 5 mm

- 0 mm
- 65 mm
- 60 mm
- 5 mm
- 35 mm
- 21 mm
- 13 mm
- 0 mm

See Table (A)

See Table (B)
Retrograde Femoral Nails–EX

Retrograde/Antegrade Femoral Nails–EX
• Universal design for the left or right femur

Material
• Titanium-6% Aluminum-7% Niobium alloy

Diameters
9 mm–15 mm (1 mm increments)
• 9 mm–11 mm are 12 mm in diameter at instrumented end
• 12 mm–15 mm have an instrumented end diameter consistent with the shaft

Colors
• 9 mm–13 mm (green) use 5.0 mm titanium locking screws (green)
• 14 mm–15 mm (aqua) use 6.0 mm titanium locking screws (aqua)

Lengths
Retrograde Femoral Nails–EX
• 160 mm–280 mm (20 mm increments)
Retrograde/Antegrade Femoral Nails–EX
• 300 mm–480 mm (20 mm increments)

Cross Section
• 9 mm–10 mm nails are round
• 11 mm–15 mm nails are fluted

<table>
<thead>
<tr>
<th>Nail diameter</th>
<th>Locking screws</th>
<th>Protection sleeve</th>
<th>Drill sleeve</th>
<th>Trocar</th>
<th>Calibrated drill bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0 mm–13.0 mm (green)</td>
<td>5.0 mm (green)</td>
<td>12.0 mm/8.0 mm (03.010.063)</td>
<td>8.0 mm/4.2 mm (03.010.065)</td>
<td>4.2 mm (03.010.070)</td>
<td>4.2 mm (03.010.061)</td>
</tr>
<tr>
<td>14.0 mm and 15.0 mm (aqua)</td>
<td>6.0 mm (aqua)</td>
<td>12.0 mm/8.0 mm (03.010.063)</td>
<td>8.0 mm/5.0 mm (03.010.066)</td>
<td>5.0 mm (03.010.071)</td>
<td>5.0 mm (03.010.062)</td>
</tr>
</tbody>
</table>
**Tibial Nails–EX**

Universal design for the left or right tibia

**Material**
Titanium-6% aluminum-7% niobium alloy

**Diameters**
8 mm–13 mm (1 mm increments)
- 8 mm–10 mm nails have a proximal diameter of 11 mm
- 11 mm–13 mm nails have a proximal diameter consistent with the shaft diameter

**Colors**
- 8 mm and 9 mm (blue) use 4.0 mm titanium locking screws (blue)
- 10 mm–13 mm (green) use 5.0 mm titanium locking screws (green)

**Lengths**
255 mm–435 mm (15 mm increments)

**Cross Section**
- 8 mm–10 mm nails are round
- 11 mm–13 mm nails are fluted
Tibial Nails–EX with Proximal Bend
Universal design for the left or right tibia

Material
Titanium–6% aluminum–7% niobium alloy

Diameters
8 mm–13 mm (1 mm increments)
- 8 mm–10 mm nails have a proximal diameter of 11 mm
- 11 mm–13 mm nails have a proximal diameter consistent with the shaft diameter

Colors
- 8 mm and 9 mm (blue) use 4.0 mm titanium locking screws (blue)
- 10 mm–13 mm (green) use 5.0 mm titanium locking screws (green)

Lengths
255 mm–435 mm (15 mm increments)

Cross Section
- 8 mm–10 mm nails are round
- 11 mm–13 mm nails are fluted
### Hindfoot Arthrodesis Nail–EX

- **Right and left designs**
- **Cannulated for use over all Synthes 2.5 mm/3.0 mm ball-tipped reaming rods**

### Material
- Titanium-6% Aluminum-7% Niobium alloy

### Diameters
10 mm, 12 mm, and 13 mm
- 10 mm and 12 mm nails have a 12.5 mm distal diameter
- 13 mm nails have a 13 mm distal diameter

### Color
- Light green

### Lengths
- 150 mm, 180 mm, and 240 mm

### Cross section
- 10 mm nails are round
- 12 mm and 13 mm nails are fluted
- 240 mm length nails have a 9 mm proximal diameter

### Proximal locking
- Fully targeted from lateral or medial side
- Dynamization slot (5.0 mm locking screw)
- Static transverse locking hole (5.0 mm locking screw)

### Distal locking
- Static oblique locking (5.0 mm locking screw)
- Static transverse locking (6.0 mm locking screw)
- Spiral blade slot (spiral blade or 6.0 mm locking screw)