SPEED Hand and Wrist System

SPEED Continuous Compression Implant

Hand surgeons continuously strive for solutions that address:

- **Bone stability** – Nonunion rates are still significant in these types of procedures:
  - Up to 15% (scaphotrapeziotrapezoid fusion)\(^1\)
  - Up to 17% (4-CF fusion and scaphoidectomy)\(^1\)
- **Risk of implant misplacements** that arise due to limited availability of bone surface area (2–4 mm) at surgical sites\(^2\)
- **Preservation of blood supply** at surgical sites
- **Soft-tissue irritation and impingement** at surgical sites\(^4\)
The SPEED Hand and Wrist System

The SPEED Hand and Wrist System, developed with a team of leading hand surgeons, is designed to redefine simplicity in the operating room and to make Nitinol hardware fixation as intuitive as possible.

- Continuous Compression Implants may result in a **lower risk of non-unions and hardware complications** compared to screws\(^3\)
- The newly developed cannulated system is easy-to-use with more precise **implant placement** and may save time in the OR
- A minimally invasive procedure, which **preserves soft tissue** for greater blood supply at the operative site
- Continuous Compression Implants can be recessed through troughing to **avoid implant prominence** without negative impact on compression force, bending stiffness and ultimate bend strength of the implant\(^4\)
- Nitinol construction provides continuous, active compression and **effective reduction** throughout the healing process

**Featured Procedures:**

- Limited intercarpal joint arthrodesis (including isolated capitulonate, two-column and four-corner fusions)
- Carpometacarpal (CMC) joint arthrodesis
- Radiolunate (RL) or radioscapholunate (RSL) joint arthrodesis

**SPEED Implant vs Leading Headless Compression Screws (N)**

Pre and Post 100 Cycles at 1 mm Displacement*
Nitinol Technology

The implant is pre-loaded and constrained in the open position on the insertion tool.

Upon release into the bone, the implant provides continuous dynamic compression during healing.

The Advantage of Nitinol over Traditional Bone Fixation

<table>
<thead>
<tr>
<th>Nitinol based bone fixation systems</th>
<th>Traditional bone fixation system</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nitinol can store energy and transfer it onto bone in order to achieve a spring-like effect.</td>
<td>• Provides only static fixation.</td>
</tr>
<tr>
<td>• By behaving like a spring, an activated Nitinol implant can self-adjust over time to continuously, dynamically compress bones together.</td>
<td>• Unable to self-adjust over time to compensate for the effects of bone resorption that can lead to decreased stability.</td>
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<tr>
<td>• Nitinol helps minimize the effects of bone resorption and maintain a stable construct.</td>
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</table>

Continuous Active Compression is based on the superelasticity of our implants that allow them to behave like powerful springs. SPEED Implants have been shown in Bench Trials** to recover from repetitive construct deformation.

SPEED Memory Implant vs Leading Headless Compression Screws:
Pressure Map Profile From Bench Study (Or Trial)**

Headless Compression Screws showed a significant loss of contact area post displacement.

**Bench Test results may not necessarily be indicative of clinical performance.
**The SPEED Drill Kit**

**Pre-Sterilized | Fully Disposable System**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Drill Bit Size</th>
<th>Drilling Templates*</th>
</tr>
</thead>
<tbody>
<tr>
<td>DK-200HW</td>
<td>2.0 mm</td>
<td>09,11,13,15</td>
</tr>
</tbody>
</table>

- **A** Drilling Templates (4)
- **B** 1.1 mm K-Wires, 150 mm length (4)
- **C** Depth Gauge
- **D** 2.0 mm Drill Bit
- **E** Tamp
- **F** Pull-Pins 2.0 mm (2)
- **G** K-Wire Retentions (2)
- **H** Sizing Guide
- **I** 0.9 mm K-Wires, 100 mm length (4)
- **J** Cannulated Drill Bit
- **K** K-Wire Guides (2)

† Provisional fixation
‡ Compatible with cannulated instruments

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**Corresponding SPEED Continuous Compression Implants**

<table>
<thead>
<tr>
<th>Implant Kit</th>
<th>Bridge*</th>
<th>Legs*</th>
<th>Wire Size*</th>
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<tbody>
<tr>
<td>SE-0907</td>
<td>09</td>
<td>07</td>
<td>1.5 x 1.5</td>
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<tr>
<td>SE-0910</td>
<td>09</td>
<td>10</td>
<td>1.5 x 1.5</td>
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<tr>
<td>SE-1108</td>
<td>11</td>
<td>08</td>
<td>1.5 x 1.5</td>
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<td>SE-1110</td>
<td>11</td>
<td>10</td>
<td>1.5 x 1.5</td>
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<td>SE-111513</td>
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<td>SE-1512</td>
<td>15</td>
<td>12</td>
<td>1.5 x 1.5</td>
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</table>

**Clinical Indications:** Fracture and osteotomy fixation and joint arthrodesis of the hand. Fixation of small fragments of bone (i.e. small fragments of bone which are not comminuted to the extent to preclude staple placement). These fragments may be located in long bones such as the femur, fibula and tibia in the lower extremities; the humerus, ulna or radius in the upper extremities; the clavicle; and in flat bone such as the pelvis and scapula.

**References:**

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