



Inspan®
ScrewLESS Fusion

Torsion And Disassembly Analysis of Inspan Versus Aspen Spinous Process System

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ABSTRACT

Background: Interspinous fixation is an attractive alternative to pedicle screws and other more invasive fixation methods. It has been well established that a well designed interspinous fixation device performs best in restricting flexion and extinction motion and less in torsion. We aim to study the torsional strength and the disassembly forces between two industry leading interspinous fixation devices, Inspan and Aspen.

Methods: Inspan LLC and Aspen (Zimmer-Biomet) ISD specimens were tested in static disassembly to measure disassembly force (N) and displacement at disassembly force (mm). Disassembly fixtures consisted of plates 5mm thick with machined holes to allow spikes and each device's central post to pass through them. Two (2) disassembly fixtures were placed between the device side plates, the side plates were pushed together, and set screws were tightened. Disassembly fixtures were then mounted to the test frame.

Results: No testing failures were reported in dynamic axial compression bending testing was performed at 1750 N up to 5,000,000 cycles and dynamic torsion testing performed at ± 8.0 N-m up to 5,000,000 cycles. Mean disassembly force of Inspan ISD was 2479 \pm 249 N compared to Aspen ISD of 1542 N.

Conclusion: The Inspan IPD showed no failure in dynamic axial compression and dynamic torsion testing. Inspan demonstrated superior disassembly force approximately 1000 N greater than Aspen.

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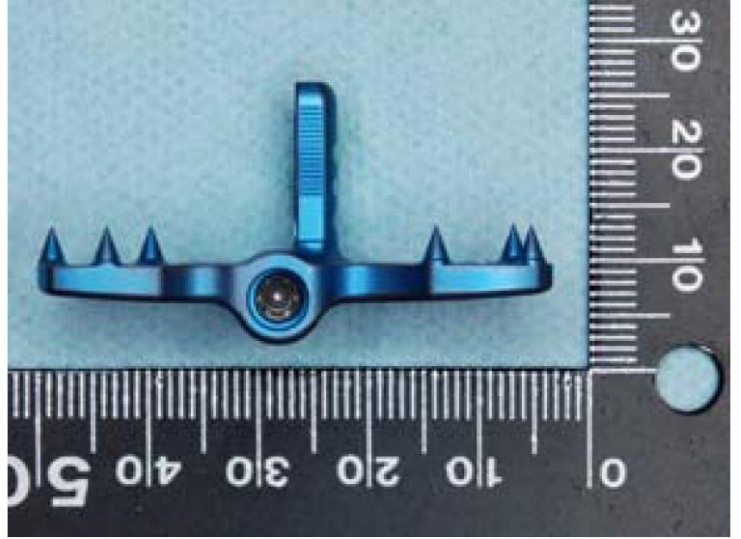
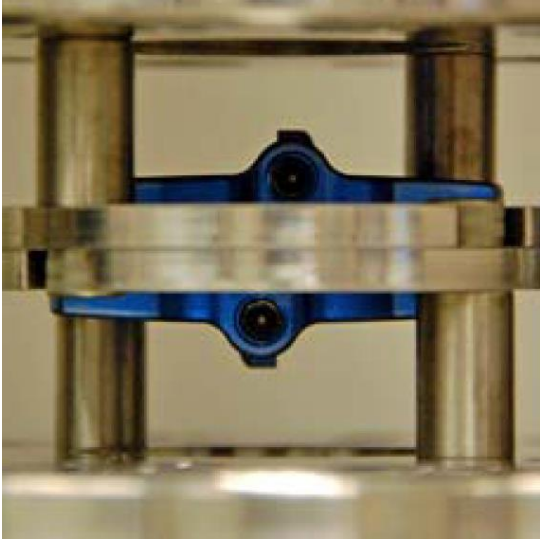


Fig. 1. Inspanse IPD

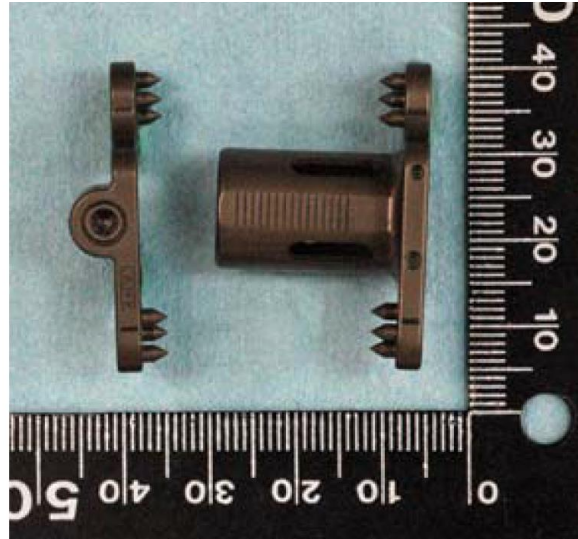
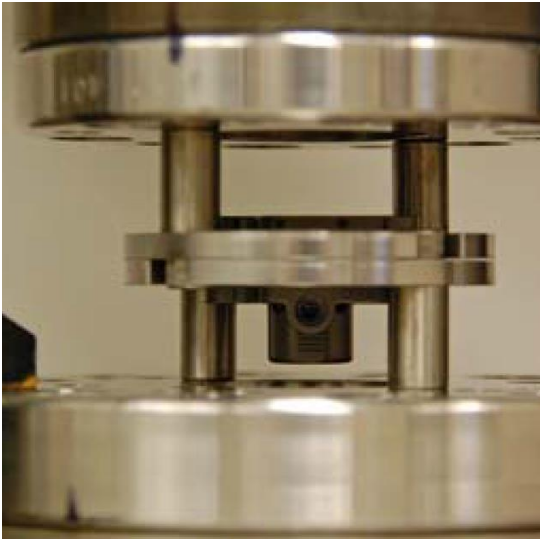


Fig. 2. Aspen IPD