

Novel Intervertebral Body Fusion Device

ID: 2022-032

Executive Statement:

A breakthrough in spinal surgery technology, enhancing stability and flexibility for intervertebral fusion.

Technology Overview:

This technology is an innovative intervertebral body fusion device designed to improve spinal fusion surgeries. The device was rigorously tested for axial compression and shear strength according to ASTM F2077 standards, utilizing finite element analysis (FEA) for predicting stress behavior and evaluating design modifications for optimal performance. Key features include tracked versus flat contact methods and variations in flexure sizes, aiming to improve mechanical efficacy and patient outcomes.

Key Advantages:

- Superior performance of tracked-contact design in resisting displacement under axial compression.
- Enhanced stability and functional flexibility through design optimization.
- Robust material performance indicated by delayed failure points in shear tests.
- Incorporation of detent features to prevent overexpansion and jamming, enhancing device safety.

Problems Solved:

- Improves mechanical stability in spinal fusion surgeries.
- Addresses the challenge of achieving precise stress thresholds in spinal implants.
- Mitigates the risk of implant displacement under mechanical stress.
- Reduces the likelihood of overexpansion and jamming in spinal fusion devices.

Market Applications:

- Spinal fusion surgeries and other orthopedic procedures requiring intervertebral support.
- Enhancement of existing spinal implant technologies for better patient outcomes.
- Application in the development of more robust and reliable spinal surgery tools and devices.