

# Tri-Axial Spinal Fusion Device

ID: 2022-034

## Executive Statement:

A revolutionary spinal fusion device designed to enhance surgical outcomes through a minimally invasive, adjustable approach.

## Technology Overview:

The Tri-Axial Spinal Fusion Device is a cutting-edge medical invention aimed at improving the efficacy and safety of spinal fusion surgeries. It features a unique design with four main components: an outer cage, an insert, a threaded wedge, and a screw mechanism for precise adjustments. This device allows for bidirectional expansion, enabling surgeons to adjust height and lordotic angles with unprecedented accuracy, catering to individual patient anatomy and surgical needs.

## Key Advantages:

- Minimally invasive approach reduces patient recovery time.
- Adjustable height settings to match patient-specific anatomical requirements.
- Reduces subsidence by offering better load distribution.
- Restores natural lordotic angles for improved post-surgery alignment.
- Bidirectional expansion capability for superior adjustability and fit.

## Problems Solved:

- Complications associated with traditional spinal fusion surgeries, such as subsidence and misalignment.
- Lack of adjustability in existing spinal fusion devices.
- Long recovery times and invasive procedures required by current technologies.

## Market Applications:

- Spinal fusion surgeries, specifically for patients requiring precise vertebral alignment and stabilization.
- Orthopedic and neurosurgical medical device markets.
- Customized surgical solutions for complex spinal conditions.