Deployable Compliant Rolling-Contact Element (D-CORE)

BYU #2014-109

DESCRIPTION

Researchers at BYU developed a mechanism that can go from a flat state to a deployed state that acts like a hinge. The D-CORE consists of two cams that are connected by flexible bands to create a one-degree-of freedom angular joint with a moving instantaneous axis of rotation.

PROBLEM SOLVED

Compared to traditional mechanisms, compliant mechanisms can offer cost reduction due to lower part count and assembly time, simplified manufacturing processes, performance improvement through increased precision and reliability, and reduced wear, weight, and maintenance. D-CORE requires no lubrication, wear is dramatically reduced, and the compliance of D-CORE enables design for specific force-deflection properties and an ease of miniaturization.

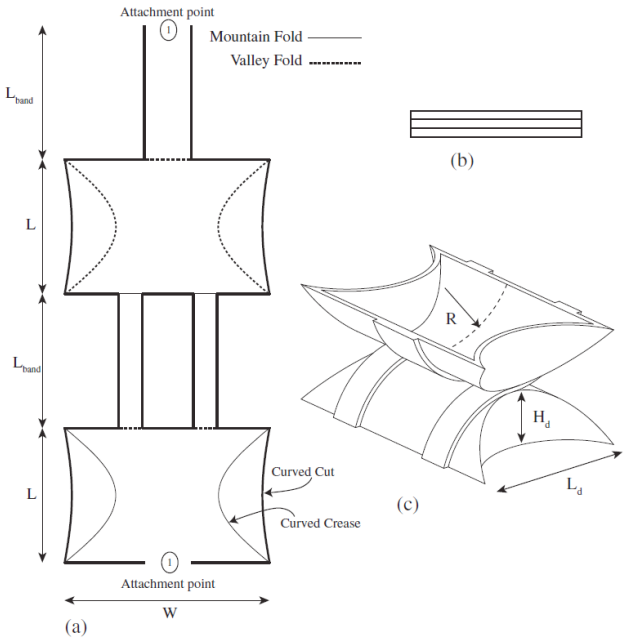

Fig. 5. Configuration 1 of the D-CORE shown in its (a) planar, as-manufactured state, (b) folded undeployed state, and (c) deployed state.

KEY ADVANTAGES

- *Can be manufactured from a single sheet*
- *Can be folded into a flat position to accommodate space constrained applications*
- *Can produce a hinge-like motion without lubrication*

Offer:
License
Exclusive
World Wide
All Fields of Use

APPLICATIONS

The invention provides solutions to space-constrained applications including aerospace, minimally invasive medical devices, medical implants, stowable furniture and consumer electronics.

IP STATUS:
US Application 14/969979
PCT Filed

Lead Inventor

Dr. Larry Howell
PhD, Mechanical Engineering

BYU TECHNOLOGY transfer

Spencer Rogers
srogers@byu.edu
(801) 422-3676