Biaxial Load Cell with Highly Anisotropic Force Resolution

Published date: July 25, 2012

Technology description

This novel load cell utilizes beam theory and geometry to concentrate stress for the biaxial measurement of anisotropic forces. The load cell is made from precisely machined metals with highly engineered features to concentrate stress. Wheatstone bridges accurately measure and decompose loads in two directions (along the y and z axes). The load cell's unique geometry allows force resolutions that are 1000 times greater in the z-direction compared to the y-direction.
The ranges of loads detected in each direction enable the effective measurement of friction coefficient or anisotropy index from 3×10^{-6} to 250.

Application area

Tissue engineering
Biological experiments

Advantages

Uses standard signal processing hardware and software
Single load cell for multiple axes
Parallel connectivity possible
Reduces experiment time and cost
Dual functionality of apparatus
Application of known forces while simultaneously measuring the resulting forces

Institution

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