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FORCE SENSOR FOR MEASURING STATIC AND DYNAMIC FRICTION COEFFICIENTS

Abstract

From a technical perspective, tribology and specifically friction are phenomena of paramount importance in virtually any and all engineering applications, since interfacing surfaces of materials cannot conceivably move in a space where intermolecular forces are nonexistent. A certain level and presence of friction is mandatory for any kind of motion to take place. Different materials have different frictional characteristics, properties of which must be ascertained and scrutinized thoroughly in order for them to be considered for their proper areas of use. Force sensors provide feedback to automatized processes, ensuring different steps are taken sensitive to peripheral changes. Flowever, force sensing methods can be modified or refined to serve specific ends such as the detection of even the most minuscule amounts of friction. A prominent example would be the case of wing design of aircraft such as commercial airplanes. Main wings of commercial airliners also serve as the fuel depot, and shall retain a certain amount of flexibility in order to withstand large G forces.

Present invention is conceived to address this problem specifically: The main purpose of the present invention is to detect friction forces in millinewton ranges and to measure the coefficient of friction between the interacting surfaces of two specimens. Detection of force in a command space has been performed in different ways.

Problem solved with the technology

The main purpose of the present invention is to detect friction forces in millinewton ranges and to measure the coefficient of friction between the interacting surfaces of two specimens.

The invention generally concerns a force sensor that is specially envisioned to act as a sensor for measuring friction force and determining the friction coefficient of said friction force between two specimens of different material properties.

The present invention generally concerns a friction force sensing system comprising one interrupter with a blocking extension and one flexible assembly having a fixed end and a free end, longitudinal flexures extending between said fixed end and free end, said interrupter and said flexible assembly being fixedly connected to each other by a mounting element at the free end of said flexible assembly.

KOÇ UNIVERSITY
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Potential Application

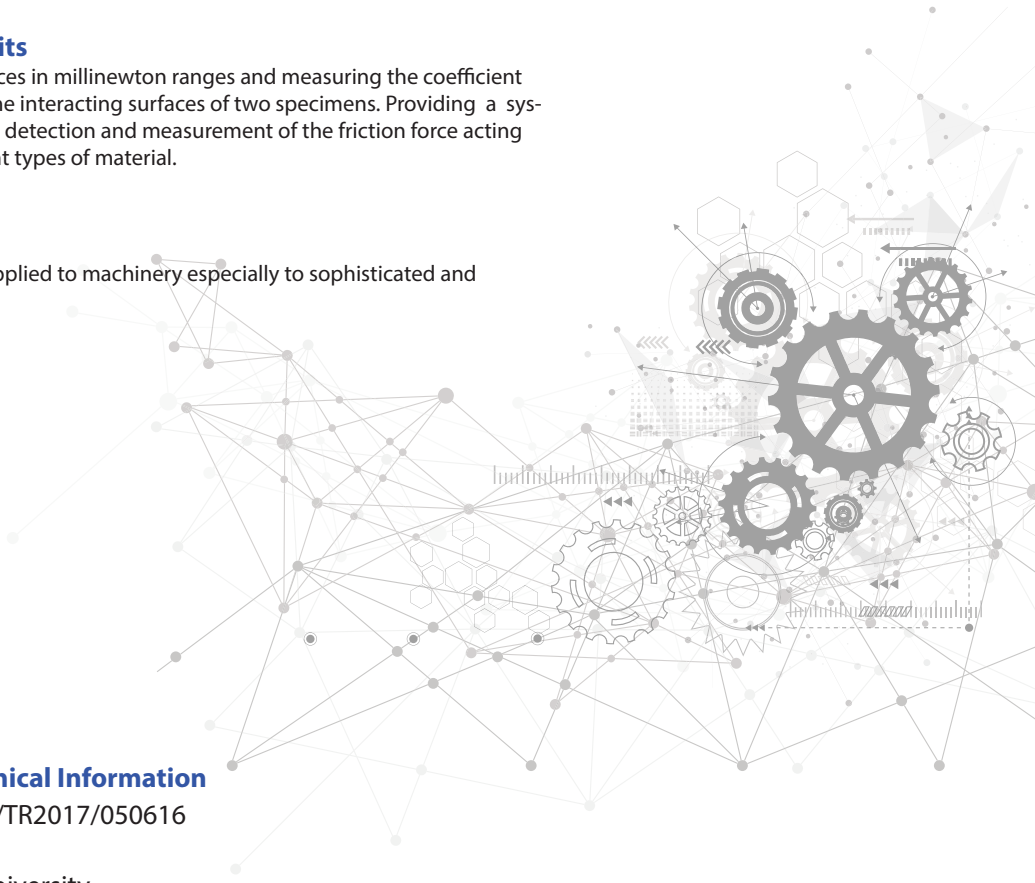
* Machinery,
* Aviation : Aircraft such as commercial airplanes
* Main wings of commercial airliners
* Friction force system. The invention concerns a force sensor that is specially envisioned to act as a sensor for measuring friction force and determining the friction coefficient of said friction force between two specimens of different material properties.
* Technology can be applied to machinery especially to sophisticated and intricate machinery.

Customer Benefits

Detecting friction forces in millinewton ranges and measuring the coefficient of friction between the interacting surfaces of two specimens. Providing a system for the sensitive detection and measurement of the friction force acting between two different types of material.

Market Trends

Technology can be applied to machinery especially to sophisticated and intricate machinery



Additional Technical Information

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