A NOVEL HYDRAULIC PRESSURE CONVERTER

Opportunity

This invention is an improved switched inertance converter, overcoming design inefficiencies that have prevented the adoption of inertance converters in industrial switching applications.

Our Solution

- Greatly improves efficiency of switched inertance converter
- Provides viable alternative to inefficient resistive valves

Background

A common problem in fluid power applications is matching of supply pressure to load pressure. In practice, a resistive valve is often used to solve this problem, but this is highly inefficient.

The switched inertance converter is an alternate solution, and is the hydraulic equivalent of the electrical switched-mode power supply. It relies on fluid inertia rather than electrical inductance to adjust pressures and flows, with theoretically no losses.

Switched inertance converters can be used to efficiently match load and supply pressures, avoiding the energy wasted by using resistive valves. However, while theoretical switched inertance converters can be highly efficient, practical implementations suffer from a number of energy losses.

This invention reduces these losses and greatly improves system efficiency.

This technology would have applications across the fluid power industry, including construction, agricultural and mining equipment.

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