Variable energy accumulator

Energy storage is important for many applications from hybrid vehicles to off-peak electric power to rotating machinery. A flywheel offers the combination of high energy density and high power density not attainable with other energy storage medium. In many situations, it is desirable to store energy at a constant angular velocity. This work proposes a novel self ...

The variable-area hydraulic energy accumulator comprises a shell, an elastic diaphragm is arranged in the shell, and a push rod with an inclined face is arranged below the elastic diaphragm and connected with a piston. The adjustable overflow valve is connected with an oil tank. Stable additional force is provided for a movable arm, and ...

The energy regeneration system was integrated five upper cylinders, check valves, a low-pressure accumulator (LPA), a high-pressure accumulator (HPA), two proportional control valves, a variable displacement hydraulic motor, an electric generator, and a battery.

The series hydraulic hybrid vehicle consists of an engine, a closed volume speed regulating circuit with an accumulator and the transmission system of a traditional vehicle, as shown in Fig. 1.The power output by the engine is transmitted to the variable pump through the clutch, and the variable pump converts mechanical energy into hydraulic energy.

The hydraulic flywheel accumulator is a dual domain energy storage system that leverages complimentary characteristics of each domain. ... Li et al. proposed the open accumulator in which the mass of gas in the gas side of the accumulator is variable. This means energy can be added or extracted either through the flow of pressurized hydraulic ...

The variable pressure source system is widely used in renewable energy recovery scenarios. However, the instability of the new energy input and the nonlinearity of the power generation system can lead to problems such as more difficult tracking and control of the maximum power point and poor power generation quality.

In this paper, we introduced an intermittent wave energy generator (IWEG) system with hydraulic power take-off (PTO) including accumulator storage parts. To convert unsteady wave energy into intermittent but stable electrical output power, theoretical models, including wave energy capture, hydraulic energy storage, and torque balance between ...

WhatsApp: 8613816583346