Proportional battery valve current abnormality

How do proportional valves work?

For proportional valves,performance depends on the current in the coil. Coil current is a function of the applied voltage and the resistance in the coil. Increasing voltage will increase the current level while increasing resistance will decrease the current level.

What is the internal resistance of a proportional valve?

The internal resistance of the coil is a function of the material used in the coil winding, and the ambient temperature around the coil. As the temperature of the coil winding increases, the electrical resistance increases. This results in a decrease of the current in the coil, which can decrease the output of a proportional valve.

What is proportional valve spool position?

Proportional valve spool position is directly related to the applied current,not the applied voltage. This is because coil resistance is not constant,but rather it increases with temperature. Therefore,one should limit the maximum current to the rating of the coil as specified by the valve manufacturer.

What is the best voltage for a SP valve?

On battery-operated equipment,a coil rated at several volts below nominal voltageworks best. In general,it is expected that in actual application,the current applied to the SP valve will vary. Sometimes the current applied may be close to maximum,while at other times it may be close to the threshold current.

What happens if the regulating pressure of valve is too low?

When the regulating pressure of valve is too low,although the passing current of proportional electromagnet is the rated value,the pressure cannot rise. If the set pressure of valve is too low,the pilot flow will flow back to the tank from valve,so that the pressure cannot rise.

What does controlled by current mean?

"Controlled by current" does not mean that no voltage is required (although that might be true in some specialized situations),it means that current is what determines the action of the valve. So you should adjust the voltage in order to maintain a certain current if you want the valve "position" to be relatively stable.

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This chart lists the diagnosis codes only which the PHEV-ECU stores related to the selector lever and the proportional valve (clutch). For diagnosis code procedures, refer to GROUP 54D - ...

Is the check result normal? Go to Step 3. Repair the connector or wiring harness. Then go to Step 5. STEP 3. Check of open circuit in the ground line (proportional valve). Check the wiring harness between proportional valve connector ...

More particularly, the invention relates to a method of detecting an abnormality in the current controller of an electromagnetic valve used in controlling the amount of supplementary air...

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Abnormal Pressure Analysis of Asymmestrical Proportional Valve-controled Multi-stage Cylinder ZHU Song-tao, CHEN De-guo, LI Jun Chinese Hydraulics & Pneumatics >> 2013, Vol. 0 >> Issue (11) : 27-29.

For proportional valves, performance depends on the current in the coil. Coil current is a function of applied voltage and resistance in the coil. Find out more!

Proportional valves are drived by current because we need a steady force and since resistance changes with temperature if they were driven by voltage this force wouldn"t be ...

In short, voltage drive forces overdesign because current varies with variations in coil resistance, temperature, supply voltage, and so on. Using current drive is optimal for many devices with solenoids. 4 Current Controlled Driver for 24-V DC Solenoid With Plunger Fault Detection TIDU578-November 2014 Submit Documentation Feedback

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Overcharging, over-discharging, short-circuiting or external impacts may produce abnormal heat that increases the internal pressure of these lithium batteries, causing ...

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