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- Load sensing control in hydraulics

Load sensing describes a pump control system that is used in open circuits. The control mechanism involves two steps. First, the load coming downstream induces a pressure on an orifice. The load pressure is sensed and determined. Secondly, the load pressure is adjusted in order to ensure a constant pressure drop, thereby enhancing a constant flow through the orifice. In load sensing control, the pressure that is induced by the load is fed through the load signal gallery into the pump. Due to the increase in the load pressure, the load sensing controller increases the pump displacement in order to increase the pressure upstream by an amount corresponding to the downstream pressure. This is important because it ensures the pressure drop from the load constant (Albers 24). Understanding load sensing controls is important in the design of hydraulic systems. This is because hydraulic systems are applied in many daily activities. Understanding the operations of the load sensing controls is important. Its applications in the field of engineering are diverse.

- Heat Exchangers

Heat exchangers are used to enhance the dissipation of heat in a more efficient manner. They are widely applied in many electrical and mechanical appliances. These include air conditioning, refrigeration, space heating, chemical processing and power generation. One of the most common heat exchange systems is the radiator in a car. The radiator helps to dissipate the heat produced in the combustion chambers in the engine. This is achieved when the hot coolant fluid exchanges the heat with the cooler air flowing over the surface of the radiator. Heat exchanger systems have different

flows. These include counter flows, parallel flows and cross flows. The design of the flows in exchange systems is an important influence to the efficiency of heat exchangers. As such, common designs include the extruded finned pipe, shell and tube, stacked plates, spiral fin pipes, double pipes and u-tube. Other heat transfer devices include the heat sinks. This device transfers the heat that is generated from a solid medium such as electrical circuits to fluid medium, many of which include liquids or air. Heat sinks are used in refrigerators, air condition and car radiators (Bergman 68). The knowledge of heat exchange systems is important. Most electrical circuits heat up, which predisposes them to ruin. As such, understanding heat exchange systems is necessary in the field of engineering.

- Biosensors

Biosensors are important implements in the biomedical field. Biosensors are implements that detect analytics that combine biological components with physiochemical detector components. Optical biosensors that are based on the concept of surface plasmon resonance can be described as evanescent wave techniques. These devices are used for numerous detection applications in the biomedical field. For instance, blood glucose biosensor is a commercial biosensor that is widely used in the detection of glucose in blood. Biosensors combine transducers and bio receptors. The bio receptor identifies target while the transducer converts the target into a signal that can be measured. The versatility of biosensors and their use in diverse settings make them important devices. Additionally, these devices are important because they can measure specific things with high degrees of

accuracy. They do not need reagents in order to operate, making them very adaptable and cost effective (Yang 5).

Works cited

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