

Latching solenoid valve saves energy

A new latching solenoid valve which is ideal for power sensitive fluidic control in oil tool, aerospace and high performance automotive applications, or wherever control systems would benefit from reduced power consumption and lower heat generation, has been introduced by Lee Products.

Unlike traditional solenoid valves which require continuous voltage to be activated from their natural state and therefore consume more energy, this magnetically latched design valve requires only a momentary pulse to switch and remain 'in-state' (open or closed).

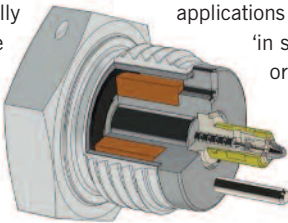
Thanks to the permanent magnets within the coil design the valve consumes less than 1 joule, of energy to be activated (and remain switched on). This is compared to a standard spring loaded 12V solenoid valve with a 26Ω coil which would require around 5.5W to open and about 0.35W to hold it in the open position. The result is a



significant reduction in overall power consumption and heat generation, particularly when extended periods of operation are required.

These valves are therefore ideal for battery-powered systems or when applications require a valve to remain 'in state' during loss of power, or have the potential to cause a valve to overheat during operation. They also benefit from the well-established and field-proven performance of Lee's piloting solenoid valves. For example, they include a MultiSeal feature which dramatically simplifies port layout ensuring significant space savings, reduced machining costs and superior reliability compared to traditional sealing methods.

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Proof that good things come in small packages

SG Transmission has designed a custom made, size Ø50 permanent magnet brake, for a major global motor manufacturer, which will meet the same performance criteria whilst being 7% smaller.

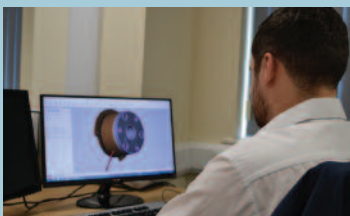
The client required a 4Nm brake design solution, reduced in size to fit its existing motor frame with flange square mounting. The brake incorporated a custom flange and reverse mounted brake hub, to keep the overall length as compact as possible. This allowed the brake air gap to be pre-set by SG Transmission.

A unit was then supplied which allowed the customer to fit the brake straight into its motor, significantly reducing assembly time.

A permanent magnet brake is a 'power-off' device which is designed so that when power is removed from the unit, the magnetic energy of a permanent magnet disc is channelled and controlled to attract the steel armature plate across an air gap. Therefore, holding it in its place against a stationary field housing to give the required braking effect.

Adam Russell, design engineer, at SG Transmission, said: "We are finding that more and more of our clients are moving away from spring applied brakes and switching to permanent magnet brakes when controlling servo motors. This is due not only to the fact that they are zero backlash, but also their compact size and high reliability."

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