

QUITTING THE QUICKSILVER

Nonmercury RoHS-compliant switches can be actuated by ferrous metal

Taking technology that has been widely used in the alarm and security industry; high-end luxury automobiles; and fire, rescue and military vehicles, Magnasphere Corp. of Waukesha, Wis., is now beginning to find applications for its sensing technology in more heavy-duty off-road applications.

"The key to the growth here is that this Magnasphere switch technology has been incorporated into a nonmercury, RoHS-compliant tilt switch," said Rick Kirschman, president of Magnasphere. "So wherever people may have used a mercury tilt switch in the past, this is a good substitute. It's already in an industrial package that, with brackets, can be mounted to any number of things in any number of off-highway applications."

RoHS, which is short for "restriction of hazardous substances," refers to European Union Directive 2002/95/EC that restricts the use of certain substances — including heavy metals like mercury — in electrical and electronic equipment that are deemed hazardous.

Kirschman cited the sensing of outrigger or boom position and use in hitches as potentially being initial off-highway machine applications.



Magnasphere Corp. is finding uses for its nonmercury, RoHS-compliant tilt switches in a variety of off-highway applications to sense outrigger, boom or hitch positions. The unidirectional model pictured here, as well as an omnidirectional model, require no standby power consumption, feature precision switching ranges and are chemically inert, the company said.

The technology has also been used in ignition systems to sense key fobs and as a roll-up door sensor and alarm system in fire trucks.

"What's unique about this is that the contact inside the switch is a magnetic ball," Kirschman said. "One of the unique capabilities of the Magnasphere switch technology is that it can be actuated by ferrous metal."

In the open position, the magnetic ball is attracted to the ferromagnetic bias ring, away from the electrode, Kirschman said. Because of this attraction, he said that the switch can be positioned in any orientation and will remain open. When an actuating magnet approaches the switch from the end opposite the electrode,

the magnetic ball is attracted to this field and "snaps" to the bottom of the case, Kirschman said, making contact with the electrode and case, thus closing the switch.

There is both a unidirectional — model T1-AB-JS — and omnidirectional — model T3-B-LS — switch. These recently introduced tilt switches require no standby power consumption, feature precision switching ranges and are chemically inert, the company said.

Kirschman said Magnasphere's most unique feature is its ability to act as a stand-alone ferrous proximity sensor. Because the spherical contact is a magnet, the switch can be actuated by the presence of ferrous metal, with no external magnet required.

"By utilizing the ferrous proximity capability with a ferrous metal ball in a contained housing, low-cost, nonmercury tilt switches have been configured," he said.

As noted, the basis of the technology is a magnetic sphere — or ball contact — housed in a durable metal housing. Completing the switch is a seal that contains the contacting electrode, insulated from the magnetic perimeter by a ceramic-to-metal bond.

The case or seal provides the sec-



One of the unique capabilities of the Magnasphere switch technology is that it can be actuated by ferrous metal. The switch can act as a stand-alone ferrous proximity sensor with no magnet actuator required. Because the spherical contact is a magnet, the switch can be actuated by the presence of ferrous metal, so an external magnet is not required.

ond contact point required to complete the electrical circuit. The seal/electrode cap is welded to the housing in an inert atmosphere, providing a hermetically sealed contact. Post-assembly magnetizing activates the magnetic properties of the contact.

The spherical shape is not polarity-sensitive and will be attracted to either pole of the actuating magnet, the company said. According to Magnasphere, the switch responds to a magnet only within a restricted zone. A stronger magnet outside the zone pulls the ball off the center electrode to open the switch, Magnasphere said.

The spherical contact is a magnet and couples with a target magnet through magnetic attraction, the company said, and if the contacts should weld, the natural movement of the target will attract the ball contact.

In addition, high closed-contact integrity makes Magnasphere technology resistant to electromagnetic interference, Kirschman said. **dp**

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Doerr To Run Eaton Plant

Eaton has appointed **Ed Doerr** plant manager of its Kearney, Neb., facility, which is part of the company's Vehicle Group. The Kearney facility produces engine valves for global vehicle manufacturers.

In his new position, Doerr is responsible for developing and driving the long-term strategy and direction of the Kearney plant. Doerr has held positions of increasing responsibility since joining Eaton as a business team leader in the Vehicle Group's Truck business in 2003. He most recently was plant manager for the company's Aerospace facility in Euclid, Ohio. He was also plant manager at Eaton's Vehicle Group facilities in Shenandoah, Iowa, and Auburn, Ind., and was a product line manager.

New Chairman At Remy

Remy International announced that **John H. Weber** has been named chairman. Weber has been on Remy's board since January 2006 and was chief executive officer and president from 2006 to February 2013 before serving as CEO of Via Motors from November 2013 to October 2014. Prior to joining Remy, Weber also held executive positions at EaglePicher, GE, Allied Signal, McKinsey, Honeywell, Vickers and Shell.

Remy's board also appointed new independent members, **Karl G. Glassman** and **Charles G. "Chip" McClure**. Glassman has held senior executive positions with diversified manufacturer Leggett & Platt and served on the board of directors of the National Association of Manufacturers. McClure has held board and senior executive positions with Meritor Inc., Federal-Mogul and Detroit Diesel and currently serves on the board of directors of the Penske Corp.

New Marketing Director For Volvo Penta



M. Puscar

Volvo Penta of the Americas has named **Marcelo Puscar** as director of marketing. He will be responsible for managing and implementing a strategic marketing plan that builds, pro-

motes and communicates the company's brand, products and services in the marine and industrial market sectors. He will report directly to **Ron Huibers**, president of Volvo Penta of the Americas.

Previously director of marine sales for Latin America, Puscar is relocating from Volvo Penta Brazil to the company's headquarters in Chesapeake, Va. He has more than 15 years of experience in the marine and automotive industries. Prior to joining Volvo Penta, he was commercial director for a large boat group in Brazil.

Kubota Expands Exec Roles

Kubota Tractor Corp. said it is expanding the roles of several of its senior leaders. **Todd Stucke** has been named vice president, Sales, Marketing & Product Support, responsible for each of the company's product segments, including ag and turf equipment, utility vehicles and construction equipment. He will also oversee their supporting operations, including responsibility for sales, marketing, service, national accounts and dealer development.

Alex Woods has been promoted to vice president, Divisional Operations. He had previously served as Southeast Division manager. Woods will be tasked with streamlining operations across all four of Kubota's divisions in the United States and will also continue to manage Kubota's Southeast Division on an interim basis.

Dan Jones was named vice president, Human Resources, Legal & Administration, responsible for Kubota's personnel, administration and legal functions.

Based in Torrance, Calif., Kubota Tractor Corp. is the U.S. marketer and distributor of Kubota-engineered and manufactured equipment, including a line of tractors, compact and utility-class construction equipment, commercial turf products and utility vehicles.

SCHWARZE: Schwarze Industries, the Huntsville, Ala., manufacturer of street and parking lot sweepers and pothole repair machinery, has hired **Martin Murrietta** as West Coast regional sales manager for the company's Contractor SuperVac Series products. An Air Force veteran, Murrietta previously held sales positions at Rexel Electrical and Datacom.