

## Garland

BEGINS TESTING  
FLEET'S FIRST HYDRAULIC HYBRID VEHICLE



The City of Garland, Texas, Environmental Water Services Department, recently began a long-term field test evaluation of the Bosch Rexroth Hydrostatic Regenerative Braking (HRB) system to assess the technical, environmental and economic benefits of the parallel hydraulic hybrid system. Sponsored by the Houston Advanced Research Center (HARC) through a grant from the Texas Environmental Research Consortium and with funding provided by the Texas Commission on Environmental Quality, this evaluation program presents a potential solution for significantly reducing exhaust emissions such as nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM), fuel consumption and vehicle operating costs in stop-and-go fleets. The goal is to evaluate the HRB technology as an alternative drivetrain system for the department, potentially leading to wider adoption in refuse trucks in Garland, the State of Texas, and nationwide.

The vehicle is a Crane Carrier LET2 with a Heil Environmental CP Python Rapid Rail automated side loader body. Two identical trucks will be outfitted with data collection systems so that comparison data can be obtained and evaluated. The trucks will be subjected to a variety of in-use testing, including braking tests, acceleration tests, route collection tests and dynamometer testing to evaluate emissions.

The HRB system captures a portion of the kinetic energy normally lost as friction heat during braking, storing it in the form of highly compressed gas for later use in assisting the engine in propelling the vehicle, reducing fuel consumption, wear on the brake system and wear on the engine.

“HARC is pleased to sponsor this type of demonstration project. When proven successful, the technology will help the state of Texas improve air quality for the long-term benefit of our residents. We would like to see this important technology validated in the field so that it can be commercially available soon to reduce emissions and save fuel. I believe that, like the electric hybrid passenger car, hybrid technologies, such as HRB, are the right solutions for this type of heavy-duty application,” says Dr. Yiqun Huang, HARC NTRD program director.

“We are excited to partner with the City of Garland as they enter into field trials,” says Ken Hank, executive vice president, hydraulics, Bosch Rexroth. “With the HRB technology, we feel we can contribute to the achievement of the city’s emissions and fuel savings goals.”

Adds Tyra Lewis, Garland’s project representative, “Fuel savings is a key component of our Environmental Management System (EMS) Program here in Environmental Waste Services. We saw this as an opportunity to explore new options to reduce fuel consumption while testing new technology.”

## Parker

TEAMS WITH CAL MOTORS  
ON HYBRID-ELECTRIC TRUCK DESIGN



Parker's Electromechanical Automation Division, a supplier of motion control technology, recently announced that its MPP series traction motor and inverter are integral components of a series-electric hybrid truck deployed by US 1 Industries to serve at the Port of Long Beach. The US 1 truck uses a 215 kW Parker MPP traction motor as the single source of torque for its Class 8 truck—a large tractor-trailer truck with a gross vehicle weight of 80,000 lbs. Thanks to the large speed range of the MPP, the truck can travel at a continuous velocity of 70 mph. Using the MPP motor, the truck has better acceleration and passing capabilities compared to the stock diesel engine typically in the truck. An onboard generator will be used to recharge the batteries as energy is depleted, giving it a range of 200 miles on a single charge at full load.

CalMotors is the company responsible for the complete integration of the powertrain. "Their intimate knowledge of the Parker components is invaluable to the optimization and ultimate success of this vehicle," says Jay Schultz, product manager for Parker's MPP motors.

The first truck will serve as a test vehicle and will collect data over a few months to confirm the theoretical performance calculations predicted by CalMotors. The Parker drive system is expected to have a timely payback for US 1; however, the emissions reduction will be realized immediately. "Parker has been an excellent partner for CalMotors as we engineer complete powertrain solutions for all sizes of vehicles," says Mike Kasaba, president of CalMotors. "The motor efficiency, performance and broad range of motor options along with Parker's agility and fast response time have allowed us to tailor an impressive powertrain system for a Class 8 truck."

Designed for the demanding applications found in today's high-performance electric and hybrid vehicles, Parker's MPP traction motors offer lower weight and higher power, all in a smaller package than other traction motors. High-performance neodymium magnets are employed for higher torque output. Parker's MPP motors feature innovative winding design and Parker's exclusive dual cooling implementation, which features a patent-pending internal cooling technology. This design yields up to 40 percent higher torque per unit size than conventionally constructed permanent magnet motors. The Port of Los Angeles and the Port of Long Beach have strict Clean Truck Programs, which mandate that all trucks that do not meet the 2007 Federal Clean Truck Emissions Standards be banned from the facility, which stretches along 43 miles of waterfront. By implementing Parker's MPP motors and inverters in their trucks, Cal Motors and US 1 are helping the busiest container port in the country meet its emission goals.

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## Emerson

RECEIVES INTERNATIONAL TRADE AWARD



Kentucky Congressman Geoff Davis (left) presents Power Transmission Solutions' Brad Gossard with international trade award.

Emerson Industrial Automation, Power Transmission Solutions business unit, was recently awarded the 2010 Northern Kentucky International Trade Award of Excellence. The award recognizes regional companies who have distinguished themselves through successfully engaging in international trade. Companies are judged on revenue generation, global network, risk mitigation and organizational structure. The award was presented by Kentucky Congressman Geoff Davis. According to Tony Pajk, Power Transmission Solutions president, "This award recognizes the ability of our people to successfully execute our global growth strategy in a highly competitive world. As a solutions provider, we clearly understand that making our global customers successful through our international presence offers significant benefits for our employees, our supplier partners and all the communities in which we operate."

Power Transmission Solutions currently has two plants in Canada, two in Mexico, two in Brazil, seven in the United States, five in Europe and three in Asia.

The company is also partnering with current customers to expand its presence in international markets. Examples include: gas turbines for energy applications, hydrofoil and fast ferry applications, wind industry components and a high-speed conveyor chain that helps bottling and food packaging companies meet their global water conservation targets. Conservation of fresh water is key to emerging markets. Brad Gossard, global vice president of marketing, notes, "We integrate the services of our international locations into the daily operation of our U.S. facilities. This has shortened our reaction time for dynamic market changes and opportunities."

## Moventas

EXPANDS GLOBAL MANUFACTURING REACH

With an investment in Portland, Oregon, Moventas is taking a significant step to expand its global manufacturing and assembly offerings for both wind turbine manufacturers and gear service customers. "The United States is one of the fastest growing wind markets and a natural choice for expanding our existing Moventas facility in Portland," says Jukka Jäämaa, Moventas CEO and president. "The initial capacity will be 200 MW, which means 100–150 mid-size wind turbine gears per year. We will also continue with the preparations for building up even larger capacity in the Midwest."

Currently, Moventas has concentrated wind gear manufacturing in Jyväskylä, Finland. The ultramodern facilities in Jyväskylä will continue to manufacture key wind gear components in the future, but the assembly and testing capacity for United States deliveries will be moved closer to customers. In North America, Moventas already has gear service facilities in South Carolina, Texas, Oregon and Ontario, Canada.

## Kan

NAMED WOMAN ENTREPRENEUR OF THE YEAR

Bishop-Wisecarver Corporation, manufacturer of guided motion technology, recently announced that company president Pamela Kan has been named Woman Entrepreneur of the Year in Pittsburg, California. "I am really honored to be acknowledged for this award," says Kan. "I hope in some small way this recognition will inspire younger women to get involved in manufacturing. This great industry fuels the economic engine of our country, and there is the potential for women to make an impact on this sector."



Pamela Kan

The award is given by Bay Area nonprofit Women's Initiative for Self-Employment, recognizing women entrepreneurs in the Bay Area who have been successful despite the barriers that exist for women business owners, who exemplify how business ownership and leadership is beneficial for women, who have a positive impact on the local community or the community at large, and who advance their business through innovation.

In recognizing these businesses, Women's Initiative celebrates the power of small businesses in transforming communities through job creation and economic revitalization. In fact, recent research from Women's Initiative shows that their graduates created more than 2,200 jobs in 2009 alone. The Woman Entrepreneur of the Year Award recognizes these women entrepreneurs and their businesses for their leadership and positive contributions to their communities. Kan was recognized at the Woman Entrepreneur of the Year Awards Ceremony on October 5, 2010 at the Round Hill Country Club in Alamo, California.

## NFPA

### CHALLENGES EIGHTH-GRADERS ON HYDRAULICS AND PNEUMATICS

The National Fluid Power Association (NFPA) Fluid Power Challenge is a competition that challenges eighth grade students to solve an engineering problem using hydraulics and pneumatics. The students work in teams of four, two boys and two girls, to design and build a fluid power mechanism, and then compete against other teams in a timed competition. Any middle school, university or fluid power company can now run a challenge event on their own. The instructions include a budget, timetable and sample e-mails, along with forms that local organizers can use and customize for their individual events. The online instructions contain detailed information for challenge coordinators, facilitators and judges, including ordering information for challenge kits, T-shirts and trophies, as well as judging criteria and step-by-step procedures for the Workshop day. Teachers can also hold a Fluid Power Challenge in their classrooms by using classroom exercise kits—a pneumatic lifter, rotational arm and clamp—which demonstrate linear and rotational movements. These kits give teachers the tools they need to teach fluid power in the classroom and experiment with hydraulics and pneumatics before entering teams in a challenge event. The NFPA Fluid Power Challenge exposes middle school students to a learning environment where engineering and math are fun, and encourages them to develop their teamwork and problem solving skills. They are introduced to careers in the fluid power industry, and teachers receive support and resources for science and technology curriculum. The complete instructions for the project can be found at [http://www.nfpa.com/Education/Challenge\\_Instructions.asp](http://www.nfpa.com/Education/Challenge_Instructions.asp).

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