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Advanced Technologies Improve Lift Truck Operational Efficiency; The latest models feature a variety of high-tech innovations.

by April Terreri

Today's advanced technologies are morphing the lift truck into a mobile data platform. Some oftoday's lift trucks, enhanced with microprocessor control equipment, are veritable data collectors that produce actionable information to help companies increase productivity and efficiencies while decreasing overall operational costs.

Other technologies are producing a range of choices including all-electric and AC trucks, programmable trucks and ergonomically designed trucks focusing on operator comfort. New trucks offer increased efficiencies comparable even to internal-combustion-engine (ICE) trucks.

Here's a look at the latest technologies available from the major lift truck vendors.

Today's Trucks: Data Factories
The Raymond Corp.

The Raymond Corp. highlighted its iWarehouse Fleet Optimization system at last month's ProMat. The brains of this system reside in microprocessor control equipment called iMonitors. This advanced system provides "snapshots" of a company's fleet, helping customers work more productively, better utilizing their fleet and better managing their assets, explains Alan Marder, director of technology solutions for the Greene, NY-based company.

"Ask companies how many of their trucks are being operated at any moment and they most likely will not know," says Marder. "Our customers can use our iMetrics Reports to drill down further to see which trucks are idle and why. We can provide management with data they never had available previously."

With actionable operational data at their fingertips, managers and upper management can know with certainty things like how many hours a truck runs during any shift, how many hours the lift has been lifting, how fast the truck has been driving, and if any impacts occurred. With a better understanding of their utilization hours, they can determine if they have the right amount of trucks and drivers to perform the task at hand. They also know about operational truck concerns, such as if the battery needs recharging.

Raymond's iWarehouse system allows management to know all the costs involved within their facility, enabling them to control their costs more effectively, says Marder. He adds that companies can expect to increase their productivity within the 5 percent to 15 percent range with this kind of knowledge.

Crown Equipment Corp.

Just released this past December, Crown's Insite is a comprehensive data management system that helps customers find ways to increase their productivity and efficiencies while lowering their overall costs.

Microprocessors collect data pertinent to the truck's operation, using a combination of operational tools. "Our data management tools pool collected data to provide valuable information so our customers can make better

operational and business decisions," reports Maria Schwieterman, marketing product manager for the New Bremen, OH company. This system is also available for trucks produced by other manufacturers.

One of these tools-Crown's InfoLink wireless fleet management system-brings operational data to managers. Now they know how many hours each truck operates; they can control who is allowed to operate particular trucks; they can ensure that each operator conducts safety inspections; they can manage planned maintenance programs; and they can track when trucks have had an accident. "It also records an equipment pre-inspection checklist used to meet OSHA regulations so there is no need for the daily paper collection of this data," notes Schwieterman.

When InfoLink is coupled with another tool-Crown's FleetSTATS fleet service tracking, accounting, and support program -this combination offers companies a comprehensive asset utilization system helpful in lowering operational costs through usable information on truck performance, maintenance, and cost.

"Crown Insite gives our customers the ability to see the whole picture within their facilities," explains Schwieterman. "Companies are inundated with so much data today-from conveyors to trucks. So they can be overwhelmed by all of this data. Our challenge was to take all of this data and produce it into usable information for our customers."

Advancing Operational Excellence
Komatsu Forklift USA Inc.

Other technologies focus on the operability of the truck, such as the new three-wheeled electric truck with AC drive, hydraulics, and control power steering introduced by Komatsu Forklift USA Inc., Covington, GA.

"The total AC system is energy efficient, allowing the operator to get longer run times with the same battery charge," notes Keith Allmandinger, senior marketing manager. Full-suspension seats and proportional hydraulic control with thumb-operated directional controls enhance operator comfort.

Cat Lift Trucks

"These days new technology really focuses on the operator and truck uptime," says Ross VanderLaan, marketing manager for Houston-based Cat Lift Trucks. Cat's Presence Detection System (PDS), introduced a few years ago, caught OSHA's eye because it helps ensure operator safety in the warehouse. It will not allow the truck to move, nor will it allow the hydraulics to operate if the operator is not sitting in the seat. "With the introduction of this technology, features such as hydraulic disconnects are being written into OSHA lift-truck standards."

Truck programmability is another advancement helping optimize operations. "As we move to AC technology and toward electric trucks over internal-combustion-engine trucks, we can help warehouse managers and operators to program the truck to meet the specific requirements of the application," reports VanderLaan.

Some of these options include programming the truck to optimize performance for longer runs, or not to be as aggressive with acceleration or other performance characteristics for new operators.

"You can also program the truck not to operate over a certain speed limit within your facility. So being able to program allows operators to fit with the machine they are assigned to work with." VanderLaan adds that Cat lift trucks easily adapt to specialized attachments used in the food industry-such as

terminals, scanners, front-end equipment and layer pickers. Most of the controller technology is developed in-house, which is another benefit.

"Many controllers on the market today are one big unit and if anything happens, the entire unit needs replacing," VanderLaan explains. "However, ours is a modular design and we believe this technology lowers replacement and maintenance costs."

Clark Material Handling Co.
Clark featured its 100-percent AC-designed 80V GEX20 through GEX32 series at the ProMat show.

"We introduced our 80-volt electric trucks into the North American market in 2008, after the success they had in Europe," says Bo Maslanyk, director of sales for the Lexington, KY-based company. "These trucks are very quiet and efficient, with no emissions. They have the power and speed of ICE units because of the extra voltage from the 80-volt battery."

The trucks in the GEX series are well-suited to the food industry. "These trucks are designed to work effectively in damp applications and their solid pneumatic tires are great for indoor and outdoor applications," notes Maslanyk. Enclosures protect heavy-duty AC drive motors from debris and moisture.

From an ergonomic perspective, the trucks' low center of gravity provides a stable work environment. Full-suspension seats provide driver comfort throughout a shift. The trucks are designed with wet-disk brakes, enclosed in oil to keep them cool, allowing longer life.

New cab options include heating and air conditioning features, again, with operator comfort in mind. Optimum thermal protection is standard on the motors and the controls, explains Maslanyk.

"With the thermal protection, if a component starts to overheat, the control automatically and gradually cuts power to allow that component to cool. Full power is automatically restored once the component reaches the acceptable temperature," says Maslanyk.

Hyster Co.

The first in the series of next generation of Hyster electric lift trucks-the E45-70ZN-was unveiled at ProMat. "This truck is the precursor of four others that will be introduced throughout 2009," says George Marshall, director of sales development for the Greenville, NC-based company. This series will have weight capacities ranging from 3,000 pounds to 12,000 pounds.

Marshall says this generation of electric trucks, with enhanced transistor technology, will compare to the traditional performance expected of ICE trucks, known for their superior performance in terms of speed and lift capabilities. "The typical speed of an internal-combustion-engine truck is in the 12 mph to 13 mph range, and our trucks will get pretty close to that-up to 11.5 mph."

Marshall notes that Hyster selects its components for this series primarily from a single source. "Many trucks out there have multiple motors such as drive motors and lift-pump motors. What we tried to do is use the same manufacturer so all of the components can tie in with each other and work more efficiently. This allows for an increase in efficiency on the order of 5 percent to 15 percent, depending on the application."

He adds that the advanced technologies in today's new motors have improved significantly with respect to lift and lower capabilities.

According to Marshall, industry evidence shows that productivity drop-off rates during the last two hours of a shift can be as high as 30 percent. "So the challenge for every OEM designer is to keep operators less fatigued so they can remain productive during those last two hours."

Yale Materials Handling Corp.

Yale introduced its ERCVG series of electric rider trucks last month at ProMat. One of the key attributes of this series is its ergonomic design that accommodates any size operator.

"We believe our new options with advanced ergonomics will help keep the operator comfortable so he can work longer and more productively throughout his shift," says J.B. Mayes, manager of target marketing and analysis, at the Greenville, NC-based company. The trucks handle weight capacities of 4,500 pounds to 7,000 pounds.

With operator comfort in mind, Yale increased significantly the space for operators' feet as they operate the truck's controls. "We designed innovative component placement to enhance operator visibility," says Mayes. "We also added storage space for operators to keep their cell phones, clipboards, drinks, and other personal accessories they might need in order to maximize their driving experience."

A vehicle system manager, or single master brain, monitors trucks in this series. "The goal is to have the truck run as efficiently as possible by using less energy than ever before," explains Mayes, adding that travel speeds and lift speeds can be increased to the point where they rival ICE trucks.

Other options also highlighted at ProMat include Yale's NREA and NRDA models with improved ergonomics to aid operators when they drive their trucks in the direction opposite to the load.

"We have an aft-travel control handle that improves the driving position and the truck's control in that driving position," Mayes says. Another option is Smart Coast Control, available on the MPE model, which helps simplify the operator's motions as he advances the truck from point to point, gathering products.

New Horizons

The new technologies built into today's lift trucks enhance the operation of the trucks and provide valuable information to upper management so they can understand the workings of their own warehouses.

Although all the data collected throughout the warehouse can sometimes seem daunting, today's lift truck manufacturers have systems that transform pertinent data into usable and actionable information so companies can make better business and operational decisions.