DATA-PROVEN RESULTS REVEAL INCREASED TRUCK EFFICIENCY AND PRODUCTIVITY

THIRD-PARTY TEST RESULTS SHOW RAYMOND HIGH CAPACITY DEEP-REACH® TRUCK OUTPERFORMS COMPETITION

RAYMOND

THE RAYMOND CORPORATION
GREENE, NEW YORK
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THE NEED FOR MAXIMUM EFFICIENCY

With the demands of today's e-commerce environment, the need to move more product faster has impacted every warehouse and distribution center. To stay competitive, facilities need to use taller pallets and move heavier loads, and material handling manufacturers are helping them do just that.

According to *The 2018 MHI Annual Industry Report*, 73 percent of survey respondents rated customer demands for faster response times as extremely or very challenging.[1] Relief comes in the form of high capacity reach trucks that are ideal for tall storage and heavy lifting. With only a handful of options on the market, how can facility managers know what's the best high capacity reach truck for their operation?

COMPARING PRODUCTIVITY

Productivity is top priority when choosing a reach truck for busy, fast-paced warehouses and distribution centers. Among the critical variables in a truck's efficiency is the ability to complete as much work as possible on a single battery change. Fewer battery changes equate to less downtime and increased productivity.

In April 2018, The Raymond Corporation® commissioned a comparative efficiency study to evaluate which of these two trucks — the Raymond High Capacity Deep-Reach truck or the Crown Model RMD6095S-32 with an express lowering option — moved more pallets faster.

The tests were conducted by PosiCharge™, an independent organization specializing in electric vehicle power systems, test equipment and vehicle charging stations, with North American headquarters in Monrovia, California. TÜV Rheinland of North America, Inc., Chicago office, witnessed and oversaw the testing. A laboratory at Raymond's headquarters in Greene, New York hosted the test.

THE TEST

The test goal was to quantify and compare the productivity of the Raymond® and Crown trucks (Table 1) when performing identical load handling tasks. To minimize any performance differences between the trucks that could be attributed to driver skill, the same three drivers tested each unit. This left the machine capabilities as the only variables. Each driver ran three trials on the same shuttle course for a total of 48 cycles. The lift truck settings were set to factory defaults before each test and verified before proceeding. A FarmTek Polaris Multi-Event Timer System was used with one set of wireless electric eyes to record the duration of the trials. Before testing, the lift truck batteries were watered, equalized and fully charged.

A PosiCharge 1000 Amp E-Meter Version 3 collected the energy data. The overall electricity consumption and regenerated energy was recorded after each run. The vehicle lift height was 480 inches. The same test load, a steel weight of 2,000 pounds, was used in all the tests. With two strap belts, the load was secured to a wooden pallet.

Table 1. Test Vehicle Specifications

TRUCK MODELS	RAYMOND 7530-DR32TT	CROWN RMD6095S-32
TRUCK TYPE	Deep-Reach	Deep-Reach
RATING	3,200 lb	3,200 lb
TIRE TYPE	Cushion	Cushion
DRIVE SYSTEM TYPE	AC	AC
DRIVE SYSTEM POWER	18Kw kW	N/A
HYDRAULIC CONTROL TYPE	AC	AC
HYDRAULIC CONTROL POWER	32.4 kW	N/A
POWER STEERING TYPE	Electric	Electric
BATTERY SIZE	18-E125-19	18-E125-19
BATTERY TYPE	EnerSys	EnerSys
BATTERY CAPACITY	1125 Ah	1125 Ah
BATTERY VOLTAGE	36 V	36 V
BATTERY WEIGHT	3,000 lb	3,000 lb

THE COURSE

The test course (see Appendix 1) required each truck to transport the load over a 100-foot distance. The test procedure was as follows:

1. Each forklift was warmed up by running the actual procedures for 10 minutes prior to each phase of the vehicle testing.
2. The forklift was placed at Position 1 with the load already on the forks.
3. The truck traveled "forks first" 86 feet down the 100-foot path, initiating the lift toward the maximum height.
4. Before reaching Position 2, the reach truck turned to face the load drop area. At Position 2 and the maximum pallet height, the forks simultaneously reached out and lowered.
5. Upon releasing the load, the retract function was applied.
6. The empty vehicle then traveled "tractor first" to Position 1, completing Cycle 1.
7. Cycle 2 started by traveling from Position 1 to Position 2.
8. The truck traveled "forks first" and while halfway down the 100-foot path, initiated an empty lift sequence without the test load.
9. At Position 2, the truck lowered the forks, reached out and in to pick up the load.
10. The truck traveled back to Position 1, ending Cycle 2.
11. A total of 16 cycles were achieved to complete 1 trial.
12. At the end of 16 cycles, the time was recorded, the E-Meter data gathering was stopped and the SD card was removed.
13. There was a 5-minute intermission.
14. Each driver ran 16 cycles on 3 trials on the same shuttle course for a total of 48 cycles

HOW THE RESULTS BENEFIT CUSTOMERS

PosiCharge representatives analyzed the data and determined the Raymond High Capacity Deep-Reach truck moved pallets 15 percent faster on the same charge compared with the Crown Model RMD6095S-32 truck. This creates significant customer benefits, such as long-term productivity and life-cycle ownership costs in actual warehouse duty.

Table 2. Reach Truck Performance Summary: Raymond vs. Crown

RAYMOND 7530-DR32TT	
TOTAL TIME: 48 CYCLE TIME COMPARED TO CROWN	15% faster
TOTAL DISCHARGE (AH) AND TOTAL CHARGE (REGEN) COMPARED TO CROWN	0% less Ah

Table 3. Labor Cost Savings by using 15% less time.

By being able to move pallets faster, the Raymond High Capacity Deep-Reach truck costs less to do the same amount of work – reducing customer labor costs, moving more product and increasing productivity.

REACH TRUCK MODEL	5-YEAR LABOR COST (PER SHIFT)
CROWN RMD6095S-32 OPERATOR	$156,000*
RAYMOND 7530-DR32TT OPERATOR	$132,600**
ANNUAL SAVINGS WITH RAYMOND 7530-DR32TT PER SHIFT	$23,400

**Based on five years of single-shift operation; at $15 per hour labor cost and 2,080 hours per year.*
***And 15% time savings based on PosiCharge test witnessed by TÜV Rheinland of North American Inc.*

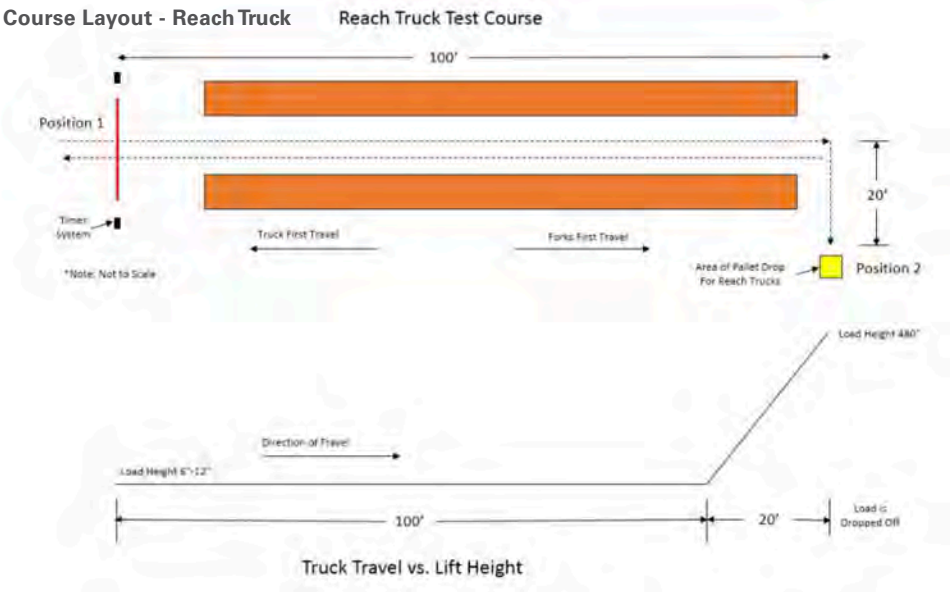
CONCLUSION

The Raymond High Capacity Deep-Reach truck was 15 percent faster than the Crown truck ultimately delivering increased efficiency and productivity.

Raymond — the creator of the narrow aisle concept, the Reach-Fork® truck and the Deep-Reach truck — continues to revolutionize warehouse operations with smarter trucks that go higher and lift more. As the industry's highest capacity reach truck, the Raymond High Capacity Deep-Reach truck that has the ACR System™ delivers more uptime, faster acceleration and lower maintenance costs and moves more product faster. These advantages, along with benefits of labor cost savings, can offer an increased cost of ownership for the long term.

These trucks are helping revolutionize today's supply chain and keeping warehouses running better and managing smarter. In a world that wants things now, these trucks will continue to be instrumental in shaping the way plant facilities operate and stay competitive.

Appendix 1. Test Course Layout - Reach Truck



[1]*The 2018 MHI Annual Industry Report: Overcoming Barriers to NextGen Supply Chain Innovation, Deloitte and MHI; https://www.mhi.org/publications/report*

RAYMOND

RUN BETTER.
MANAGE SMARTER.®

At Raymond, our aim is to deliver the utmost quality and to work for continuous improvement every day, in every aspect of our business. We are proud of what we build. We are proud of the level of service we provide to keep our customers' business up and running. We take pride in our commitment to our customers through our end-to-end approach in helping them find smarter, more efficient, and more effective solutions.

We value the trust that Raymond has earned through decades of proven performance and hands-on innovation. Since the patenting of the first hand-pallet truck to the invention of the reach truck to our pioneering work in narrow aisle operations and beyond, Raymond has led the way in providing customers with the tools and expertise to improve their business.

IF YOU'RE LOOKING FOR A PARTNER WITH THE TOOLS AND EXPERIENCE TO HELP YOU RUN BETTER AND MANAGE SMARTER, LET'S TALK.

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