BREAKING THE PERFORMANCE BARRIER – STILL'S RX60-25 HIGH PERFORMANCE UNDER TEST

With its new RX60, Still delivers a first in forklift testing that will really make you sit up and take notice. For the first time in our history of testing, we have recorded productivity values in an electric counterbalance truck that exceed those of comparable trucks with a combustion engine that we have tested. The high-performance model in the new series from the Still powerhouse accelerates, lifts and drives as powerfully as a diesel counterbalance truck, but without generating the high noise and exhaust emissions typical of combustion engines.

Forklift trucks with electric motors are increasingly conquering terrain which was previously mainly the reserve of forklift trucks with combustion engines. Electrically powered industrial trucks are now so robust and weather-resistant in their design that they can be used safely and comfortably in harsh weather conditions outdoors. The use of lithium-ion batteries is making such vehicles increasingly more energy-efficient. They can also be used for an extremely practical operating time thanks to an intermediate recharging option. All things considered, there seem to be few arguments left in favor of continuing to use combustion engine forklifts. However, advocates for combustion engines argue that they offer greater productivity and a longer operating period, which can be extended without noticeable loss of time thanks to the comparably short refueling process.

We now have a test candidate that seems to refute these arguments: the Still RX60-25 High Performance. Our measurements show that it achieves a level of productivity never seen before when it comes to the number of pallets handled per hour. If we look at its practical operational time, our test forklift lasts almost 1.5 working days on a single battery charge. The operating time is theoretically unlimited if the lithium-ion battery is quickly recharged during breaks. Have we found ourselves a true IC killer, if you pardon the expression?

	Driving speed with a 1,700 kg load [km/hr]	Lifting speed with a 1,700 kg load [cm/ s]	27.2 m sprint [s]	Practical duration of use [hr:min]
Still RX60-25 MAX	22,82	64,69	7	12:51 [670 Ah]
Still RX60-25 STD	19,52	57,64	7,9	16:04 [670 Ah]
Still RX60-25 ECO	19,29	42,84	9,1	19:37 [670 Ah]
Still RX60-25 MAX+BQ	22,82	64,69	8	16:21 [670 Ah]
Still RX60-25 STD+BQ	19,52	57,64	8,5	17:49 [670 Ah]
Average value of the 2,5-3-tons-electric four-wheel trucks we tested	16,52	47,46	8,4	08:03 [650 Ah]
Average value of the 2,5-3-tons-LPG-trucks we tested	19,32	56,81	6,99	
Average value of the 2,5-3-tons-diesel-trucks we tested	18,71	57,17	7,03	

A SUCCESSFUL CONCEPT EVOLVED

The RX60 family comprises seven different models in the bearing load segment between 2.5 and 3.5 tons inclusive. In designing its RX60 series, Still drew on a concept that was implemented two years ago when it completely remodeled its RX20 series: Ergonomics and comfort have increased significantly thanks to the changes in the vehicle design. The manufacturer sharpened its focus on the forklift's use under harsh weather conditions by using more steel and, most importantly, high-quality steel. For example, the battery compartment door can bear the weight of two people without the hinge bending when open.

01 **The design concept creates space for a comfortable climb-in and plenty of legroom**

COMFORT AND SAFETY

The design concept has left its mark on our test candidate: after climbing in, we effortlessly and comfortably slip into the driver's cab with plenty of legroom and perch on the driver's seat. We feel comfortable within a work area laid out with ample space. When we first glance through the lift mast and the cab roof, there is nothing to complain about in terms of visibility.

The display integrated into the adjustable armrest provides us with all the relevant information about the vehicle and a wide range of setting options. This allows us to select from different drive and lift programs, such as Sprint mode or Blue Q energy-saving mode. The arm rest can be adjusted horizontally and vertically. It would be better if height adjustment could go just that little bit lower as far as we are concerned.

A steel handle has been welded onto the cab's B pillar to help the driver reverse and climb in and out. From an ergonomic standpoint, the handle is fitted at the right height for all drivers, but it is not covered, so it is unpleasantly cold to the touch. We also miss the option of pressing the horn with the handle in our test forklift, although we were informed that this option is available when we asked about it.

PREDICTABLE AND PRECISE

The RX60-25 High Performance is a highly predictable candidate with or without load and does exactly as expected. The steering column can be locked into four different positions to adapt to each driver's specific driving needs, although its height cannot be adjusted. As with other test vehicles, the RX60's steering wheel with control knob can also be rotated beyond the stop position, bug the knob is always in the correct position when driving straight ahead.

We now come to the lifting mast control: here, we have two operating levers on the arm rest ready for our use. We move the left-hand control lever to raise, lower and tilt the lifting mast and use the right-hand joystick for the side shifter. The lifting mast can be very precisely controlled. The lifting speed is remarkable in the RX60's high-performance model as it uses a 25 kW pump motor instead of 20 kW. We documented a record speed of around 66 cm/s without a load.

About the test truck

Dimensions and technical data	
Length up to front surface of fork shank	2,410 mm
Truck width	1,199 mm
Mast height (retracted)	2,275 mm
Frame height	2,226 mm
Forks (L × W × D)	1,200 × 100 × 40 mm
Wheelbase	1,645 mm
Ground clearance	127 mm
Overhang from front axle to front surface of fork shank	455 mm
Overhang at back	310 mm
Working aisle width	3,890 mm
Test truck's maximum permitted load capacity (according to loading chart)	2,500 kg
Load centre of gravity	500 mm
Maximum lift height	3,247 mm
Free lift	160 mm
Lift mast inclination angle, forwards/backwards	7°/7°
Geschwindigkeiten	
Lift speed with 1,700 kg load (settings: MAX)	64,69 cm/s
Lift speed with 1,700 kg load (settings: STD)	57,64 cm/s
Lift speed with 1,700 kg load (settings: ECO)	42,84 cm/s
Lift speed with 1,700 kg load (settings: MAX+BQ	64,69 cm/s
Lift speed with 1,700 kg load (settings: STD+BQ)	57,64 cm/s
Travel speed with 1,700 kg load (settings: MAX)	22,82 km/h
Travel speed with 1,700 kg load (settings: STD)	19,52 km/h
Travel speed with 1,700 kg load (settings: ECO)	19,29 km/h
Travel speed with 1,700 kg load (settings: MAX+BQ)	22,82 km/h
Travel speed with 1,700 kg load (settings: STD+BQ)	19,52 km/h
Drive technology	
Traction motor drive power	2 × 10,5 kW
Lifting motor drive power	25 kW
Battery capacity	80 V, 670 Ah
Stability	
Tare weight/percentage on rear axle	4,599 kg/48,47 %
Weight with maximum load/percentage on rear axle	7,099 kg/11,02 %
Tyres	
Size, front	23/09-10
Size, rear	18/07-08
Manufacturer	Continental

All information is based on the test team's own investigations and measurements, and may differ from the manufacturer's information.

Source: Andersom Testing/f+h

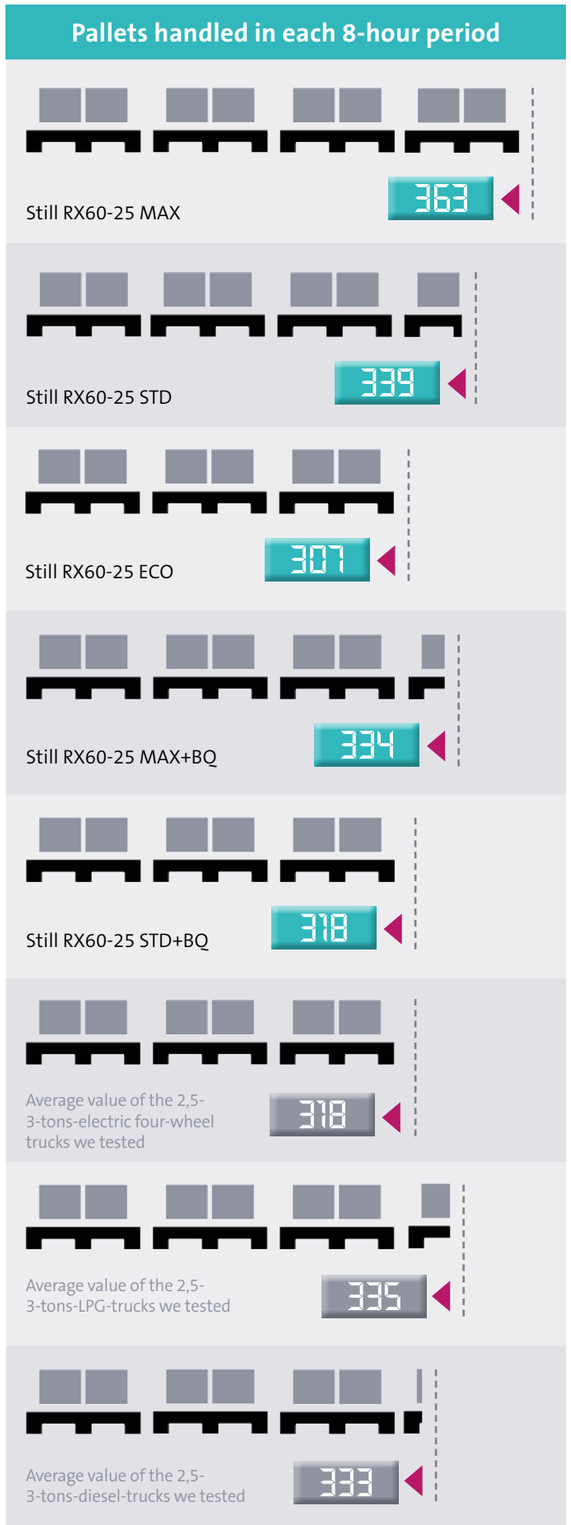
02 + 03 There are no complaints regarding visibility through the lifting mast and the overhead guard

04 The clearly structured smart display provides us with an overview of all relevant vehicle information, driving programs and assistance systems

05 We are anxious to show the battery compartment door's sturdy design, including its hinge

Consumption in kWh per 100 pallets handled		Consumption in kWh during the test	
Still RX60-25 MAX	12,4	Still RX60-25 MAX	5,63
Still RX60-25 STD	10,6	Still RX60-25 STD	4,5
Still RX60-25 ECO	9,6	Still RX60-25 ECO	3,69
Still RX60-25 MAX+BQ	10,6	Still RX60-25 MAX+BQ	4,42
Still RX60-25 STD+BQ	10,2	Still RX60-25 STD+BQ	4,06
Average value*	20,17	Average value*	8,01

*Average value of the 2,5- 3-tons-electric four-wheel trucks we tested



06 **The lithium-ion battery (670 Ah/80 V) provides enough power to handle 1.5 shifts at the vehicle's top performance level**

07 **Our test candidate delivers record results in performance measurements on the standard test course**

POWERFUL AND PRODUCTIVE

We also feel the power of the high-performance model when driving. Instead of propulsion motors with an output of 2 × 8.5 kW, this pre-series model of the RX60 features drive motors with a power output of 2 × 9.6 kW. A drive variant of 2 × 10.5 kW will be available for the final standard series. The forklift is very nippy in Maximum plus Sprint mode and we achieve a driving speed faster than 22 km/h in next to no time.

The combination of acceleration, driving and lifting delivers high productivity with 363 pallets handled within a period of eight hours on our test course. The most powerful diesel forklift we have tested in this weight class achieved 358 pallets and the most effective electric forklift before now managed 339 pallets in eight hours.

POWERFUL IN ENERGY SAVING MODE

Our test vehicle is impressively fast on the move, but always remains predictable. This is also the case when braking in Maximum mode. The RX60 also feeds the drive battery with energy released during braking. The proportion of usable regenerative energy we measured is comparatively high. This energy recovery makes the RX60-25 High Performance a highly energy-efficient electric counterbalance truck. According to our measurements, the lithium-ion battery (670 Ah/80 V) can achieve a practical operating time of almost 13 hours, even in Maximum mode. Besides the convenience of intermediate recharging, the lithium-ion technology also excels due to its high efficiency. Compared to the lead-acid battery, which can be discharged up to 80 percent, the lithium-ion battery can even be operated when discharged up to 95 percent. If the user values operating times more than speed during day-to-day operation, a practical operating period of 16 hours can be achieved with just one battery charge with the Blue-Q function activated. Productivity remains at the same level as the most powerful electric forklift truck we have tested to date.

TEST RESULTS

Still is setting new standards in the electric counterbalance truck segment with the high-performance model in its RX60 series. Never before in our long test history has a forklift with an electric drive been so productive. That's spectacular in itself, but the RX60 is a true top performer. This is the first time that an electric forklift has outperformed diesel forklifts in the same load capacity class that we have tested regarding productivity. However, since the RX60 also excels thanks to other features such as low noise emissions, energy efficiency, low maintenance, ease of operation and predictable driving behavior compared to the aforementioned combustion engines, the arguments in favor of combustion engines in this weight class seem to be slowly disappearing into thin air.

Text and photos: *Theo Egberts, Andersom Testing*
Graphics: *VFV, Sonja Schirmer*