

# COMPACT POWERHOUSE



When an industrial truck manufacturer redesigns one of its best-selling products from first principles and describes the result as “Electrifying”, that naturally arouses the test team’s interest. That’s why we then critically analysed the RX20-16 electric three-wheel truck made by the STILL company. The results will show whether or not the manufacturer has promised too much.

	Driving speed with a 1,000 kg load [km/hr]	Lifting speed with a 1,000 kg load [cm/s]	27.2 m sprint [s]	Practical duration of use [hr:min]
STILL RX20-16 Li-Ion Setting S3+H3	19.0	65.10	7.1	14:00
Still RX20-16 Li-Ion Setting BQ3+H3	15.8	55.6	7.9	16:05
STILL RX20-16 Li-Ion Setting BQ1+H1	15.8	47.3	8.1	18:08
Average value of the 48-V electric three-wheel trucks we tested in 2018	15.10	44.04	8.66	07:46

**A**ltogether the new RX20 model series made by STILL includes 13 machines. These electric three- and four-wheel trucks cover a carrying capacity range from 1.4 to two tons. The potential operator can order the truck as an already compact standard version, as an extra-compact version or with an extra-long chassis size. The latter variant allows the installation of batteries with a capacity up to 750 Ah.

Our RX20-16 test truck was the standard version of the 1.6-ton model. This 48-V electric three-wheel truck is equipped with a lithium ion battery (938 Ah). However, the test trucks would also have had space for a lead-acid battery, since the RX20 is designed to operate with both kinds of traction batteries.

**01** Unfortunately the new RX20 (unlike the predecessor model series) no longer has an additional entry step. This means we face a 545 mm step up to reach the workplace



## MORE SPACE PLEASE!

As well as its suitability for different battery systems, the manufacturer's engineers immediately included other development goals in the specification. At the very top of this list was the creation of a generous amount of space for the driver, together with an optimum overview of the forks and load. Added to this was user friendliness. Last but not least, goods handling performance was a key figure designed to convince potential purchasers. How far have the engineers fulfilled these specification requirements? Those were the questions we set ourselves during our initial inspection of the test truck – and on that basis we examined it very closely to find the answers. Compared to the previous generation, the driver's cab floor has been lowered by 50 mm to improve the space available for the driver. This causes the seat height to be correspondingly lower, resulting in a truck with a height of 2,035 mm above the driver's protective canopy, and therefore a dimension that allows the industrial truck to be driven into a container. When the floor panel was lowered, STILL decided to



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eliminate the step that was present on the previous model. That's a pity, since we find that the 545 mm entry height is simply uncomfortable. Fortunately, the entry is free from obstructions. Moreover, a generously-sized grab handle assists the driver to reach his/ her workplace. After taking our place in the driving seat, we are positively astonished at how much legroom the compact truck provides. The pedals are comfortably arranged, although in our opinion the brake pedal height could have been made slightly lower. This would benefit a smoother change from the „gas“ pedal to the brake pedal.

## NEW SAFETY AND COMMUNICATIONS CENTRE

Outstandingly good – this is the rating we give to the visibility conditions on the new RX20. The view of the forks and load simply leaves nothing more to be desired. The lowered instrument panel, slim design of the driver protection canopy struts and their profiles, and the new lifting mast contribute to this.

The newly-developed Easy Control display and operating unit, which functions as a safety and communications centre, also meets with our approval. The fully graphic

### About the test truck

#### Dimensions and technical data

Length up to front surface of fork shank	1,944 mm
Truck width	1,099 mm
Mast height (retracted)	2,060 mm
Frame height	2,035 mm
Forks (L x W x D)	800 x 80 x 40 mm
Wheelbase	1,409 mm
Ground clearance	114 mm
Overhang from front axle to front surface of fork shank	374 mm
Overhang at back	161 mm
Working aisle width	3,394 mm
Test truck's maximum permitted load capacity (according to loading chart)	1,600 kg
Load centre of gravity	500 mm
Maximum lift height	4,715 mm
Free lift	150 mm
Lift mast inclination angle, forwards/backwards	5°/6°

#### Drive technology

Traction motor drive power	2 x 6.5 kW
Lifting motor drive power	11 kW
Battery capacity	48 V, 938 Ah

#### Stability

Tare weight/percentage on rear axle	3,057 kg/50.28 %
Weight with maximum load/percentage on rear axle	4,657 kg/11.7 %

#### Tyres

Type	Solid rubber tyres
Size, front	180/70 - 8
Size, rear	125/75 - 8
Manufacturer	Continental

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

## ASSESSMENT

- + Performance and consumption
- + Standard equipment
- Lack of an entry step
- Brake pedal height

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colour display with automatic brightness control is mounted on the adjustable armrest and is protected by a scratch-free surface. The left - and right - hand sides of the display screen each have five buttons to set and adjust the truck's numerous functions. Depending on the intended use, the driver can independently assign the functions to be initiated via the buttons. This enables frequently used settings to be carried out quickly and efficiently.

Thus the buttons can be used to select a large number of operating modes, driving programs and lifting speeds. Moreover, these inputs can be combined with the Blue-Q energy-saving program. Three settings are available for each basic mode. Anyone for whom the



**02** The newly-developed display and operating unit functions as a safety and communications centre

**03** The panorama canopy is part of the special equipment. Together with the slim roof pillars and profiles, it provides outstandingly good visibility

**04** In spite of the truck's compact dimensions, the foot - and leg room turns out to be more generous than on the predecessor series of models

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Consumption in kWh per 100 pallets handled		Consumption in kWh during the test	
			
STILL RX20-16 Li-Ion Setting S3+H3	7.56	STILL RX20-16 Li-Ion Setting S3+H3	3.86
STILL RX20-16 Li-Ion Setting BQ3+H3	6.72	STILL RX20-16 Li-Ion Setting BQ3+H3	3.36
STILL RX20-16 Li-Ion Setting BQ1+H1	6.6	STILL RX20-16 Li-Ion Setting BQ1+H1	2.98
Average value of the 48-V electric three-wheel trucks	10.58	Average value of the 48-V electric three-wheel trucks	4.86

associated choice of setting options is not enough can have his/her requirements profile saved in memory by the service technician.

## PERFORMANCE AND PRODUCTIVITY

In practice, we expect the operator to select a setting between „all maximum“ and one of the Blue-Q variants of the three basic options. These can then be individually combined with additional lift speed and additional driving speed as required.

In our test, we drove the RX20-16 lithium ion truck at maximum power setting and with the energy-saving program in settings 3, 2 and 1 in conjunction with the respective lifting speed 3, 2 and 1. After the test drives, we were impressed by the character of the RX20. We have never before tested a truck in this segment that responds faster to the driver's commands – and that holds true equally for the „drive“, „accelerate“ and „lift“ functions.

At maximum performance setting, the test truck's power develops so forcefully that wheel-spin occurred when accelerating and changing direction. However, this was also due to the building's smooth floor. This caused us to lose a couple of seconds on each occasion.

After measuring the time difference on a better surface, we achieved a calculated eight-hour performance of 430 palletes. This means the RX20 exceeds the highest value we have determined in this fork-lift truck class up to the present. If we select a Blue-Q setting, even combined with the moderate driving and lifting program 1, the results are still above the class average.

### 05 Access to the battery through the side door is quick and easy



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## LOW CONSUMPTION

The new RX20 also convinced us as regards energy consumption. Even at maximum setting, it is significantly lower for the test truck than the average in this category. Thus the RX20 with a 938 Ah lithium ion battery on board has no problems coping with even an intensive working day. The truck will hold out during three-shift operation with one intermediate recharge.

As far as energy consumption is concerned, only Jungheinrich's EFG 216k can hold a candle to our truck. You can find the comprehensive test of the Jungheinrich electric three-wheel truck in Issue 3/2017 of f+h. However, both industrial trucks are in the same league with regard to energy consumption.

## SUMMARY OF TEST RESULTS

With the current RX20 series of models, STILL sets a new standard in the electric three- and four-wheel trucks segment up to a two-ton load capacity. The dual battery compartment equips the operator for the future, since new battery technologies such as lithium ion batteries can be used. The operator can switch between lead-acid and lithium ion batteries depending on the requirement.

Our test machine is abundantly equipped as standard. The new display and operating unit, via which the assistance systems are also accessible, is noteworthy in this respect. Among other things, the available assistance systems include a stability status indicator in the display, as well as speed reduction when the fork carriage is raised. Known assistance functions such as Curve Speed Control,

which automatically adjusts the speed to the steering angle when cornering, are also applicable on the RX 20.

Our test truck's maximum driving speed is 20 km/h. If anyone asks whether a warehouse must really operate so quickly, our reply is No! This is because a fast driving speed does not equate to high productivity.

Points of criticism include the absence of an entry step and the high position of the brake pedal.

It should also be noted that the manufacturer has largely replaced plastic components by steel in the exterior area. The battery door has been strengthened, for example, and all the headlights and safety lights are protected by robust steel plates.

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