TOP PERFORMANCE WITH „HIGH-SPEED LIFT MAST“ - CROWN‘S ESR 1060 IN TEST

With the ESR 1000 Series, Crown adds a new dimension to the reach truck segment. The American manufacturer introduces new features such as the patented Xpress Lower technology, the Gena operating system and a next level of safety advice and guidance for the driver. Thanks to the optional Xpress Lower technology, the mast is lowered at an unprecedented rate and energy is also generated. Both aspects deliver noticeable gains in productivity and energy consumption during the test.

Crown is a brand with a unique approach of trucks and their usage. The products stand out because of their balanced beige/black colour scheme with orange accents, very often very well-thought-out design and a high degree of self-produced components. The ESR Series is developed, engineered and produced in Germany. It has models of 1.4, 1.6 and 2 tonne lifting capacity and offers mast heights up to 13,560 mm. Our test candidate is the ESR 1060 with 1.6 tonne lifting capacity, a mast height of 6,840 mm and a lithium-ion battery of 48V/468 Ah.

	Drive Speed 1,000 kg load [km/h]	Lift speed 1,000 kg load [cm/s]	Sprint over 15 m [s]	Practical operating time with maximum battery power [h:min]
Crown ESR 1060 P1 (Lithium-ion battery / 624 Ah)	15	61	6,2	13:19
Crown ESR 1060 P2 (Lithium-ion battery / 624 Ah)	11,67	51,91	6,4	14:38
Crown ESR 1060 P3 (Lithium-ion battery / 624 Ah)	10,59	51,37	7,2	16:38
Average for reach trucks before this test (Lead-Acid battery / 789 Ah)	12,34	47,61	6,33	12:01

FOCUS ON QUALITY, SAFETY AND OPERATOR COMFORT

First impressions of the ESR are positive. The truck is accessible and open and neatly finished. We notice this in the beautifully shaped entry/exit, neat layout of the cabin and the ergonomically adjustable armrest and steering column. We look closely and cannot see any sharp edges anywhere – a characteristic of high-quality workmanship. When we look inside the driver‘s cab, we find various practical storage compartments and boxes. Even our clipboard can be stored safely and easily.

You can activate the truck with a PIN code or a tag. Crown used the InfoLink system to prepare for our arrival, so we’re greeted by name when we log in with the tag. An extensive user profile can be linked to the login, with preferences clearly displayed. This exceeds the usual driving modes and also offers lifting height presets and whether or not to go through the ‘pre-op check’ or safety inspection before the start of the shift. In addition, the display randomly provides safety tips, such as keeping your feet safely inboard or watching out for tipping hazards. Through a small loudspeaker in the cabin, the driver occasionally hears an audible tone that indicates whether you are operating the truck correctly (in ascending melody) or incorrectly (pitch descending). In the beginning we find this a bit irritating, but gradually you notice that it is not unjustified. The system really makes you more safety-conscious and aware of the need to adopt proper working methods.

SMART DISPLAY

After logging in, the rest of the new Gena user interface will also become visible. In handling, the operating system is similar to the operating concept of modern smartphones. The 7-inch colour touchscreen makes it easy to select widgets that you as a driver like to use. For example, lift height and weight indication, lift height preselection, steering wheel indication, battery information etc. Here, too, the operation is very intuitive: you choose what you want just by swiping and tapping the screen or via the jog dial button (as in many cars) on the armrest.

The Gena system is programmable in 25 different languages. Service engineers and account managers can view and adjust all settings and history of the truck via the display. No laptop is required for adjusting preferences, which saves time and money for the end user, according to Crown.

01

The entry and exit is spacious and provides safe access to the driver’s cab

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03

04

RAPID DESCENT

The position of the mast is offset and arranged to give the operator optimal visibility. All hydraulic functions can be precisely and predictably controlled via the easy-to-use fingertip levers. In the maximum performance mode P1, lifting a 1-tonne load is exceptionally fast at 61 cm/sec. Even in the more economical modes, lift speeds remain above average.

Lowering is even faster thanks to the (optional) Xpress Lower technology with a maximum speed of 110 cm/sec. Crown combines this patented technology with regenerative lowering where the returning oil flow generates energy. Our test truck scores a lowering speed of 69 cm/sec when handling 1 tonne. To see how strong the effect is at higher masts, we also measure the performance of a 12-metre mast. This even drops by 84 cm/sec, which is an absolute test record. The unloaded fork also drops rapidly by 52 and 62 cm/sec respectively (for the 12-metre mast) including the free lift. Converted, the Xpress Lower technology turns out to be 50% faster compared to Crown's safety lowering speed, which occurs automatically when the mast is reached out. Compared to the 'productivity benchmark truck' in our database, the lowering speed is 25% faster.

EVALUATION

+ High performance
+ Safety
+ Ease of use
– Steering character at high speeds

FREE ENERGY

During our test we 'only' lift up to 5 metres and the time advantage of the Xpress Lower system offers less profit than at higher working heights. Nevertheless, we are impressed by the lowering speed of the lift mast and its smooth reaction.

The second advantage of Xpress Lower is the regeneration of energy during lowering. In our measurement this is on average 11% of the energy needed to lift. It does not matter whether we do this with the 5-metre levy or up to 12 metres. So, every 9th lift comes for free from an energy point of view. If we add this gain to the generated braking energy, we arrive at a favourable energy consumption for the ESR 1060. Both in terms of productivity and energy consumption, Crown scores top values in the reach truck segment. The lithium-ion battery offers the additional advantage of problem free opportunity charging when needed.

PREDICTABLE CHARACTER

The ESR achieves good scores partly because of the predictable driving behaviour. This would be even better if steering at higher speeds was a bit stiffer and give more feedback to the driver. Driving around corners goes very well thanks to the correct setting of the Optimised Cornering Speed system. Furthermore, the overall ease of operation and the good view of fork tips and support legs make working even easier. It is the only truck on the market to feature top and bottom yellow indicator stripes, something Crown has been adding for many years. The front of the support legs also features a contrasting colour. This certainly makes it easier to reduce collisions with racking uprights.

Present on the truck, but functions not used during the test, are the lifting height preferences and the automatic levelling of the fork. What is clear, however, is that these functions are very easy to use.

CONCLUSION

With the ESR 1060 in this test, Crown brings a truck that combines high productivity with very low energy consumption. The truck is predictable and offers a high level of safety. The intuitive display, combined with the assistance systems, gives the operator every opportunity to make the job easier. A point for optimisation can be seen in the fine-tuning of the steering functions when driving at higher speeds.

Text and photos: *Andersom Testing, Theo Egberts and Mark Dohmen*

Graphics: *VFV, Sonja Daniel*

About the test truck	
Dimensions and technical data	
Max. permissible load capacity	1 600 kg
Lifting height	6 840 mm
L2 dimension	1 288 mm
Working aisle width	2 840 mm
Truck width	1 285 mm
Distance between the support arms	965 mm
Battery voltage, capacity test truck/maximum	48 V, 468 Ah/624 Ah
Power drive motor	9,0 kW
Power lift motor	17,1 kW
Inclination for mast or forks	Forks
Mast dampening during lifting/lowering	Yes/Yes
Mast end damping (top)	Yes
Sideshift	Yes
Wheelbase indicator	Yes
Available load capacities within the series	1,400, 1,600, 2,000 kg
Speeds	
Lifting speed with 1,000 kg load/without load (P1 mode)	61,00/72,46 cm/s
Lowering speed with 1,000 kg load/without load (P1 mode)	69,61/53,19 cm/s
Forward travel speed with 1,000 kg load/without load (P1 mode)	15,0/15,0 km/h

(All information is based on research and measurements by the test team and may differ from the manufacturer's specifications)

Source: *Andersom Testing/f+h*

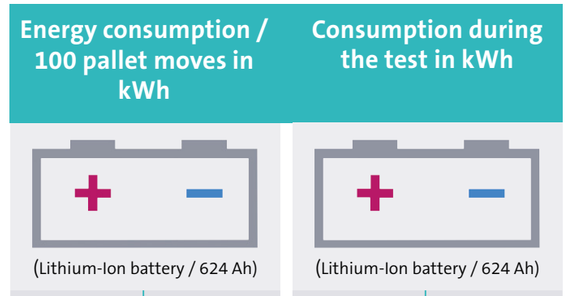
02 **The foot space is fine, pedals are positioned at the correct height and angle and edges are neatly rounded**

03 **With the fingertip levers, all mast funtions are very accurate and easy to operate. The armrest can be adjusted as required**

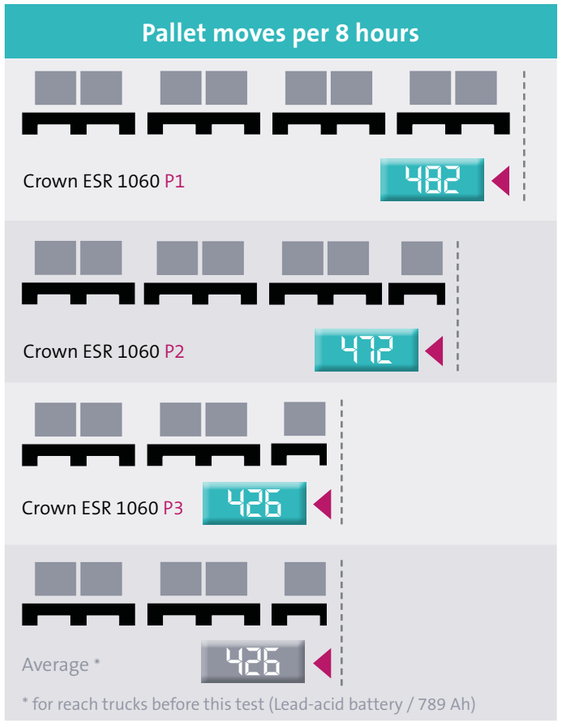
04 **The ultra-rigid panoramic roof offers a very good view of the extended lift mast**

05 **The ESR 1060 has various storage bins and pockets, including USB connection and cable entry for the smartphone**

06 **With yellow accents, Crown has been improving the contrast of fork tips and support legs for years, helping prevent accidents and collisions**



* for reach trucks before this test (Lead-acid battery / 789 Ah)



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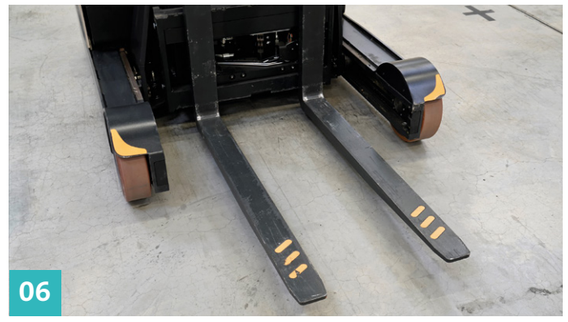

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