



**verkehrs  
RUNDSCHAU**  
**Forklift test**  
Electric front-end forklift truck

### In brief

In the forklift test, the SCT 6020 three-wheel electric forklift from the US manufacturer Crown achieved an overall score of 1.8 (Good). The stylish 1.6-tonne truck impressed the VerkehrsRundschau expert testers with its excellent visibility and upgraded operator comfort, including the new D4 armrest.

# A little performer in a designer outfit

**Crown has enhanced its tried and proven SC 6000 electric forklift range with leading-edge technology. Our expert test reveals whether the update complements performance and driver productivity.**



The stylish Crown SCT 6020 also impressed the testers with its good performance

Mareike Haus/VerkehrsRundschau

“Human-centred design” was the principle that Crown founders Carl H. and Allen A. Dicke adopted when they began producing industrial trucks back in 1957. The family-run business based in New Bremen in the US state of Ohio is currently joint fourth in the ranking of the top-selling forklift manufacturers. Crown has won more than 100 design awards for its machines.

When one of the little models in the designer outfit is put up for a performance rating, our experts are put to the test too.

Anyone looking to handle one of these machines has to present their forklift driver's permit - that's what the strict safety rules demand. So, having dusted off the necessary documentation and polished up our safety boots, we head to Crown's European headquarters in Feldkirchen, near Munich.

What we are coming to check out is the updated version of the SCT 6020, a 1.6 tonne three-wheel electric forklift truck with a 48V lithium battery and TL mast, liveried in Crown's typical “Ebony and Ivory” ▶

**In detail: Crown SCT 6020**



**The test vehicle**

The Crown SCT 6020 three-wheel electric forklift has a load capacity of 1.6 tonnes, with a 500 millimetre load centre. It is powered by a 48 Volt 312 Ah lithium-ion battery. The vehicle is equipped with the new D4 armrest featuring integrated joystick controls.

**The performance test**

**Loading and unloading a semi-trailer truck with 32 Europallets\***

Time taken:	31:04 min.
Energy consumed:	2.42 kWh
Energy costs:**	EUR 0.31

**In one hour**

Handling rate:	121 pal.
Energy consumed:	4.67 kWh
Energy costs:	EUR 0.61

**In an eight-hour shift**

Handling rate:	968 pal.
Energy consumption:	37.36 kWh
Energy costs:	EUR 4.88

**How the test works**

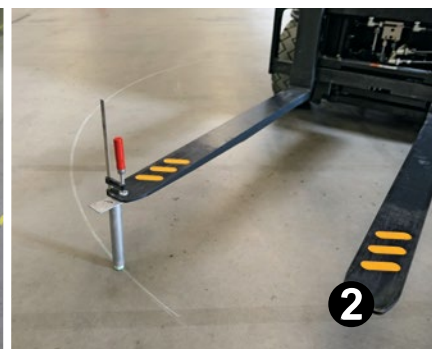
The forklift test consists of two parts. Three test drivers evaluate the forklift's user-friendliness based on a rating system. 17 criteria relating to handling performance are tested. The dynamic test on the VerkehrsRundschau circuit provides information on energy consumption and performance capability. For this purpose, we simulate loading and unloading of a semi-trailer truck with 32 Europallets. An 800 kilogram test weight is used. Measuring instruments on the forklift record the time taken and energy consumed.

\* Handling = 64 pallets, running in Power mode  
 \*\* Electricity price for industrial customers: EUR 0.13 per kilowatt-hour; source: German Federal Statistical Office



Find more on the subject at **#Forklifts**

[www.verkehrsrundschau-plus.de/hashtag](http://www.verkehrsrundschau-plus.de/hashtag)



Mareike Haus/Verkehrsrundschau

1. The cab roof, featuring Plexiglas elements and supported by four slim pillars, allows a virtually unobstructed view
2. In the test, the truck draws a precise chalk circle
3. The SCT 6020 transported 121 pallets per hour in the expert test

Technical specifications	
STRECKENREKORD von Fahrer 1	
Fahrer 1	29:26,091
32	52,295
unde(r)	52,295
Bestzeit: Fahrer 11	

Characteristics
Manufacturer and model: Crown SCT 6020 Drive: Electric. Load capacity: 1.6 t Load centre: 500 mm Unladen weight: 252 kg
Wheels/chassis
Tyres: Non-marking Superelastic Solid Xtreme tyres. Wheels: 2/2 front/rear; front-wheel-drive
Dimensions
Vehicle height: 2105 mm. Height with mast retracted/extended: 2105/3740 mm. Free lift: 150 mm. Lift: 3200 mm. Working width, pallet cross-ways/length-ways: 2992/3296 mm
Driving performance
Travel speed with/without load: 16/16 km/h. Lift speed with/without load: 0.55/0.56 m/s. Lowering speed with/without load: 0.50/0.50 m/s
Motor
Traction motor power: 2 x 5.5 kW. Lifting motor power: 11 kW. Battery: Lithium V-Force. Battery voltage: 48 V. Battery capacity: 312 Ah
Additional features
Drive control method: Transistor. Working pressure for mounted equipment: 235 bar

powder-coated paintwork. Crown builds all the major components, such as motors, transmissions and electronic modules, itself.

**Good all-round visibility**

The “human-centred design” concept is already evident in the low steps on both sides of the truck. We measure a comfortable 39 centimetres - up to the platform it’s 62 centimetres. The platform and steps are covered with anti-slip rubber mats. The conventional iron bar on the left side A-pillar is not ideal to grip safely, but it does make it easier to get in and out. The cab roof, featuring Plexiglas elements, is supported by four slim pillars, allowing a virtually unobstructed view all around. Our test truck features dual pedal control, eliminating the need for a direction switch. There is very little footwell space however, especially when wearing anything larger than average-sized safety

boots. The steering column can be infinitely adjusted to the driver, and provides adequate legroom. The view onto the forks beyond the low cockpit is good. As a special feature, there are yellow markings worked into the steel at the fork tips to provide easy guidance into pallets. The tilt speed is automatically limited depending on fork height and load weight. Within the free lift height, the mast can be tilted forward to its maximum position - even at full speed. The tilt position setting returns the mast to the vertical zero position at the push of a button. A minor detriment is the interior plastic panelling of the footwell. The boot sometimes knocks against it when switching pedals.

A comfortable Grammer air-suspended heated driver’s seat makes sitting on the smooth leatherette cover a little more comfortable. Good lateral support is provided by a restraint bar at hip height, to which



4



5



6



7



8

Mareike Haus/VerkehrsRundschau

- 4. High operating comfort thanks to touch display and armrest with integrated controls
- 5. Various driving modes can be set using the "Access 1 2 3" system control
- 6. The driver is assisted in aligning the side-shift: An arrow marking on the rear fork carriage indicates the offset

- 7. A bar on the A-pillar helps getting in and out
- 8. The footwell space is tight for anything larger than average-sized boots

### The test drivers' verdict

**Dieter (60), 37 years' forklift experience, currently working in food logistics**



Serge Voigt/VerkehrsRundschau

**Uwe (43), 20 years' forklift experience, currently working in the building materials industry**



Serge Voigt/VerkehrsRundschau

**Heinz (53), 25 years' forklift experience, currently working in the building materials industry**



Serge Voigt/VerkehrsRundschau

"The SCT 6020 is a comfortable and productive workhorse. I really like the flexibility of the magnetic storage box on the hood. I missed a mobile phone charger."

"The little details make the difference: coloured fork tips, side-shift marking, and the comfortable, optimally adjustable D4 armrest. Negative points: disturbing fan and motor noise."

"The ergonomic cockpit and innovative technology make operating the forklift easy. An extra metal edge on the step could provide additional grip when getting in and out."

<b>Summary test results</b>			
The VerkehrsRundschau ratings			
<b>Entry/exit</b> <b>1.9 (Good)</b>	<b>Armrest</b> <b>1.8 (Good)</b>	<b>Direction control</b> <b>1.4 (Very good)</b>	
<ul style="list-style-type: none"> <li>+ Entry height</li> <li>+ Both sides</li> <li>- Seat side restraint bar on left</li> </ul>	<ul style="list-style-type: none"> <li>+ Exchangeable controls</li> <li>+ Exchangeable mounting pad</li> <li>+ Wide-ranging adjustability</li> </ul>	<ul style="list-style-type: none"> <li>+ Dual pedal</li> </ul>	
<b>Workplace</b> <b>1.8 (Good)</b>	<b>Display</b> <b>1.8 (Good)</b>	<b>Working performance</b> <b>1.7 (Good)</b>	
<ul style="list-style-type: none"> <li>+ D4 armrest</li> <li>+ Comfort seat</li> <li>- Footwell size</li> </ul>	<ul style="list-style-type: none"> <li>+ InfoLink 7-inch touch display</li> <li>+ Access-123 display</li> <li>+ On-board diagnostics</li> </ul>	<ul style="list-style-type: none"> <li>+ Dynamic reversing</li> <li>+ Drive programs selectable</li> <li>+ e-GEN® brake system</li> </ul>	
<b>Visibility</b> <b>1.6 (Good)</b>	<b>Secondary switches</b> <b>2.1 (Good)</b>	<b>Quality/finish</b> <b>1.9 (Good)</b>	
<ul style="list-style-type: none"> <li>+ Slim roof pillars</li> <li>+ TL mast</li> <li>+ 2 rear-view mirrors</li> <li>+ Coloured fork tips</li> </ul>	<ul style="list-style-type: none"> <li>+ Within driver's reach</li> </ul>	<ul style="list-style-type: none"> <li>+ Precise gaps</li> <li>+ High steel content</li> </ul>	
<b>Fork control</b> <b>1.8 (Good)</b>	<b>Storage/fixtures</b> <b>1.8 (Good)</b>	<b>Energy management</b> <b>1.4 (Very good)</b>	
<ul style="list-style-type: none"> <li>+ Intuitive control</li> <li>+ Joystick</li> <li>+ Tilt position aid (TPA)</li> <li>+ Integrated side-shift with position indicator</li> </ul>	<ul style="list-style-type: none"> <li>+ Flexibly usable magnetic storage box</li> <li>+ Bottle holder</li> <li>- Clipboard holder too narrow</li> </ul>	<ul style="list-style-type: none"> <li>+ Lithium-V-force battery</li> <li>+ Quick charging</li> <li>+ Interim charge</li> </ul>	
<b>Steering/steering wheel</b> <b>2.0 (Good)</b>	<b>Safety features</b> <b>1.6 (Good)</b>	<b>Maintenance</b> <b>1.5 (Good)</b>	
<ul style="list-style-type: none"> <li>+ Compact steering column, infinitely adjustable</li> <li>+ Dual wheel steering tyres</li> <li>+ Tight turning circle</li> <li>+ Steering wheel knob with grips</li> </ul>	<ul style="list-style-type: none"> <li>+ Orange-coloured seat belt</li> <li>+ Belt with safety lock</li> <li>+ Spotlight, blue, rear</li> </ul>	<ul style="list-style-type: none"> <li>+ No battery maintenance</li> <li>+ Maintenance points easily accessible</li> </ul>	
<b>Driver's seat</b> <b>1.9 (Good)</b>	<b>Standard equipment</b> <b>2.0 (Good)</b>	<b>Overall score: 1.8 (Good)</b>	
<ul style="list-style-type: none"> <li>+ Air-sprung</li> <li>+ Seat heating</li> <li>- Smooth leatherette cover</li> </ul>	<ul style="list-style-type: none"> <li>+ Intrinsic stability system</li> <li>+ Automatic parking brake</li> </ul>		

Marked on the German rating scale from 1 (top score) to 6 (lowest score).



The forklift exhibits impressively smooth starting on ramps, with no rolling back

the reel of the orange-coloured seat belt is also attached. Unfortunately, the bar gets in the way when exiting the truck. Storage facilities for the driver's utensils, as well as a cup holder, are within reach. A smart solution is a utensil box with a magnetic attachment. The driver can place it anywhere on the seat deck.

Another boost to operator comfort is the new D4 armrest - in our test machine featuring integrated joystick controls. Multiple hydraulic functions can be operated simultaneously using one hand movement. The cockpit also incorporates the PIN-protected display of the "Access 1 2 3" system control, which is used to control the forklift functions. Three driving modes can also be set on it, and it additionally displays vehicle status information for service technicians.



1. Li-ion forklifts do not need their batteries changing, they are connected to the charging station
2. The charging plug opening for charging the lithium-ion battery is located on the truck's side cover
3. The battery is accessed by lifting the seat

Mareike Haus/VerkehrsRundschau

plug is located on the side cover. The lighting package includes two LED work lights at the front, one LED work light at the rear with integrated brake and reverse lights, plus one blue-light spotlight.

**Overall rating "Good"**

Conclusion: The SCT 6020 makes a stable and safe impression. The manufacturer has used steel where steel belongs. The updated technical features make the three-wheel forklift fit for the future. All components work together in perfect harmony in the test. The forklift turns, manoeuvres and accelerates without problem. The test driver takes 31 minutes to load and unload a lorry. The forklift consumes 2.42 kW of electricity in Power mode. In ECO mode it takes two and a half minutes longer. The energy consumption is only slightly reduced. In the end, we count 121 pallets per hour. The three-wheeler is awarded an overall score of 1.8 (Good).

Walter Dorsch, freelance journalist ■■■

On the right side B-pillar is the 7-inch touch display of the new Infolink fleet and operator management system. The monitoring unit provides information including data on productivity, capacity utilisation, energy consumption and servicing, as well as collision alerts. The manufacturer claims that this could reduce operating companies' costs due to damage by as much as 50 percent.

The variable regenerative motor braking is supported by maintenance-free, electrically-operated brakes. The parking brakes automatically stop the truck if no drive command is inputted or the driver leaves their seat. This also applies in ramp mode. The two 5 kW AC motors in the front axle provide impressively smooth starting on ramps, with no rolling back.

**Precision control of the hydraulics**

The hydrostatic power steering takes four turns of the wheel from one full lock to the other. In the test, the truck turns on the spot and draws a precise chalk circle of 3.14 metres radius. The rear end remains within the circle at all times.

The lifting and steering systems are fed by an 11 kW hydraulic pump. The hydraulic

system is precision controlled. When cornering, the power of the traction motors is regulated depending on the vehicle's steering angle. However, we find the traction motors, hydraulic pump and fan quite loud. Though what we perceive is not what is measured! Our meter records 75 dbA. The fan outputs 64.1 dbA, measured at the height of the driver's ear.

The lifting cylinders and the two dual-action tilting cylinders are also made in-house. All pistons and piston rods are chrome-plated. Nested double-T profile structures with flush inner and outer profiles are used for the mast. By dispensing with the central free lift cylinder, the TL design on our test truck offers good visibility through the mast. We measure a clear viewing window of 43 centimetres. No hydraulic hoses or lifting chains impair the view. We feel no harsh jolts when passing through the individual mast extension stages. We notice slight mast noise when driving over sills.

The test truck featured an integrated side-shift, made by Crown.

The Crown-V-Force 48V 312 Ah lithium battery is easily accessed by simply lifting the seat. The opening for the charging



Private

"The updated technical features make the three-wheel forklift fit for the future."

**WALTER DORSCH**, an industrial truck expert of many years' standing, tests forklifts for VR